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Nutritional Knowledge and Practices Regarding Healthy
Food and Clinical Nutrition Among Nurses Working At East
Jerusalem Hospitals

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Nutritional Knowledge and Practices Regarding Healthy
Food and Clinical Nutrition Among Nurses Working At East
Jerusalem Hospitals

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Thesis Approval

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Clinical Nutrition Among Nurses Working At East Jerusalem Hospitals

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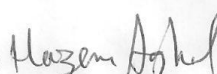
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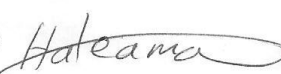
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Jerusalem – Palestine

1434/2013

DEDICATION

FOR MY FATHER & MY MOTHER.

To my brothers and my sisters

To my friend Ahmad Salahat

To my lovely wife Shomokh

الى والدي الحي دائما في قلبي، الى امي، ذلك النبض الذي سيمدني

بالحنان الى اخر نفس في عمري

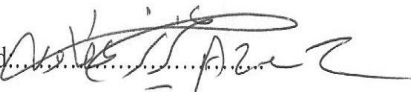
الى اخوتي واخواتي الذين دعموني في كل مراحل حياتي

الى صديقي الصدوق وعائلته احمد صلاحات

الى زوجتي التي اعدتها بالحب حتى اخر يوم في عمري شموخ طيطي

Declaration

I certify that this thesis submitted for the degree of master in public health is the result of my own research, except where otherwise acknowledged, and this (or any part of the same) has not been submitted for a higher degree to any other university or institution.

Signed.....

Azeez Salman Attwna

Date 11.5.2013

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Special thanks to my brother Mohamad, my teacher Professor Adnan Shuqair, Suzy Daher, Martin Iqbal and to all of public health faculty team in Al-Quds University

Abstract

Background: Good nutritional knowledge and practice among nurses is essential for providing a high quality of care to patients. There are no known studies to date that have evaluated nutritional knowledge and practice among Palestinian nurses.

Objectives: To assess the nutritional knowledge and selected practices regarding healthy food and selected clinical nutritional items among nurses working at East Jerusalem hospitals, furthermore to assess nurses' nutritional knowledge regarding healthy balanced diet, macronutrient, and micronutrient, and to assess nurses' nutritional practices toward their patients.

Methods: This is a descriptive cross sectional study, included all nurses who work in Al-Makased Hospital, Saint Joseph Hospital, Saint John Ophthalmology Hospital, Augusta Victoria Hospital, and Red Crescent Hospital, and have direct contact with patients. 407 nurses participated in the study out of 466 nurses. Data on nutritional knowledge and practices were collected by valid and reliable (Cronbach Alpha 0.81) self-administered questionnaire, during the period September 2011 to November 2011. The relationships between variables were analyzed by using the chi-square test (χ^2 test). The data were analyzed using the Statistical Package for Social Sciences (SPSS), version 18.

Findings: The vast majority of the nurses participated in the study (86.8%) had a fair level of overall nutritional knowledge. Most of the participants had a good level of knowledge regarding balanced diet, and had fair level of knowledge about micronutrients like calcium and iron and factors affecting their absorption. However, the participants had a poor level of knowledge regarding selected clinical nutritional items. Significant relationships were seen between nutritional knowledge regarding gender ($P=0.025$), (female nurses had better level than male nurses), curriculum content to nutritional courses ($P=0.026$), participant method of training in the nutrition courses during their study ($P=0.012$), and participant rating of the importance of having basic nutritional knowledge for nurses ($P=0.001$). More than 85% of participants had good level of nutritional practice in this study. Significant relationships were seen between nutritional practice regarding the hospitals were participants work in ($P=0.01$), the presence of nutritional courses in the participant's

nursing education ($P=0.02$), and participant's perceived level of nutritional knowledge (0.001).

Conclusion: Result showed a poor level of knowledge in selected clinical nutritional items, thus indicating a need for further training in areas like selected clinical nutritional items, and food groups. Furthermore, there is a need for more detailed studies into factors affecting nurses' nutritional knowledge and practices.

الملخص

خلفية البحث: المعلومات الجيدة عن التغذية والممارسات الغذائية لدى المرضى تجاه مرضاهم ضرورية من أجل تقديم خدمة ترضية عالية الجودة، حتى الآن لا يوجد دراسة قامت بتقييم معلومات وممارسات المرضى الفلسطينيين فيما يتعلق بموضوع التغذية.

الاهداف: لتقييم المعلومات الغذائية بخصوص الغذاء الصحي وبعض عناصر التغذية السريرية المختارة عند المرضى العاملين في مستشفيات القدس الشرقية، بالإضافة لتقييم المعلومات الغذائية بخصوص الغذاء الصحي المتوازن، والعناصر الغذائية الكبرى والصغرى ولتقييم الممارسات الغذائية للمرضى تجاه مرضاهم.

إجراءات البحث: هذه دراسة وصفية تحليلية، شملت كل المرضى الذين يعملون بشكل مباشر مع المرضى في مستشفى المقاصد، والمستشفى الفرنسي، مستشفى الشيخ جراح للعيون، ومستشفى المطلع، ومستشفى الهلال الأحمر. شارك بالدراسة ٤٠٧ ممرض من ٤٦٦ ممرض. البيانات فيما يخص المعلومات والممارسات الغذائية جمعت بواسطة استماره تتمتع بمستوى عالي من الدقة والثبات (Cronbach Alpha 0.81) سلمت للمشاركين بالدراسة بشكل شخصي، تم جمع المعلومات خلال الفترة ما بين شهر ايلول وتشرين اول من العام ٢٠١١. تم حساب العلاقات ما بين متغيرات الدراسة باستخدام اختبار (Chi-square) وباستخدام برنامج الرزم الإحصائية للعلوم الاجتماعية (SPSS.18).

النتائج: معظم المرضى المشاركين في هذه الدراسة (٨٦.٨%) كان لديهم مستوى متوسط من المعلومات عن التغذية بشكل عام. كما ان معظم المشاركين كان لديهم مستوى عالي فيما يخص معلوماتهم عن الغذاء المتوازن والعناصر الغذائية الصغرى مثل الكالسيوم والحديد. بالمقابل فان معظم المشاركين كان لديهم مستوى ضعيف فيما يخص معلوماتهم عن المجموعات الغذائية وبعض جوانب التغذية السريرية.

لقد كان هناك فروقات ذات دلالة احصائية ما بين مستوى المعلومات عن التغذية لدى المشاركين وبعض متغيرات الدراسة مثل الجنس ($P=0.025$) (كان لدى الاناث مستوى اعلى من الذكور) ، وجود مواد تعلم التغذية في المنهاج اثناء دراسة المشاركين للتمريض ($P=0.026$) ، طرق تدريب المرضى

على موضوع التغذية اثناء الدراسة ($P=0.012$)، مدى تقدير المشاركين لأهمية معرفه الممرضين عن المعلومات الاساسية عن التغذية ($P=0.001$). كما ان اكثر من ٨٥% من المشاركين كان لديهم مستوى عالي من الممارسات الغذائية نحو المرضى، ولقد كان هناك فروق ذات دلالة إحصائية ما بين مستوى الممارسات الغذائية للمشاركين نحو مرضاهم مع بعض متغيرات الدراسة مثل المستشفى الذي يعملون به ($P=0.01$) ، وجود مواد تدرس التغذية اثناء دراستهم للتمريض ($P=0.02$) ، ومدى توقع المشاركين لمستوى معلوماتهم بالتغذية ($P=0.001$).

الخاتمة: اظهرت النتائج وجود مستوى ضعيف عند المشاركين فيما يخص بعض مواضيع التغذية السريرية، وهذا يدل على الحاجة للمزيد من التدريب على مواضيع التغذية العلاجية والمجموعات الغذائية، كما ان هناك الحاجه لمزيد من الدراسات حول العوامل التي تؤثر على مستوى معلومات وممارسات التمريض الغذائية نحو مرضاهم.

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List of abbreviations

Abbreviation	Definition
MST	Malnutrition Screening Tool
MST	Malnutrition Universal Screening Tool
N	Number
%	Percent

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Definitions.

Nutrition: Is a branch of science that studies the process by which living organisms take in and use food for the maintenance of life, growth, reproduction, the functioning of organ, and the production of energy (Gandy J. W. 2006, P. 4).

Practice: Refers to the application of rules and knowledge that leads to action, where good practice is linked to the progress of knowledge and attitudes (Contento,IR. 1995).

Healthy diet: is the food that is important to maintain health, growth, development, and is protective against diseases, it includes criteria of healthy food and basic nutrients functions (Garrow. J. 2005, P. 109).

Clinical nutrition: is the study of the relationship between food and a healthy body. How food works in the body, and what influences food have on health and disease. (Sobotka. L. 2011. P 419).

Balanced diet: is the diet that contains all food groups which include carbohydrate, protein, fat, vitamins, minerals, and water. Also, it contains this nutrient in correct quantity and quality proportion (Whitney, E. et al. 2007.p.203).

Food pyramid: A diagrammatic representation of recommended portions of basic food groups, to promote good health and reduce the risk of chronic diseases, such as, heart disease, certain types of cancer, diabetes and stroke. The pyramid shape, with grains at the base, fruit and vegetables share the next level of the pyramid, meats and milks appear in a smaller section near the top, fats, oils, and sweets occupy the part at the top of the pyramid(Vaclavik. V.A, and Charitian, E. W. 2003. P15).

Chapter One

Background

1.1 Introduction.

Nutrition is a branch of science that studies the process by which living organisms take in and use food for the maintenance of life, growth, reproduction, the functioning of organ, and the production of energy (Gandy, 2006, P. 4). Adequate nutrition is a basic human need and plays a critical role in health and disease. Nutrition is a fundamental pillar of human life, health and development across the entire life span; starting from the earliest stages of fetal development, at birth, through infancy, childhood, adolescence and on into adulthood and old age (Mahan and Escott, 2004). Recognition of the role of nutrition in health promotion, disease prevention and treatment of chronic disease is well recognized, and nutrition is cited as the most controllable risk factor affecting long-term health (Wynder, and Andres, 1994).

A number of health professionals, including nurses, provide nutritional information to the community (Schaller and James, 2005). Health team competency of nutritional information and their practices is very important as they are in direct relationship with the healthy and diseased population, furthermore many people in the general population may ask these professionals for advice in this area because they are perceived as role models for the public (Al- Numair, 2004). Nutritional information and practices is particularly very important for nurses, as they are working in comprehensive and holistic care. Nurses spend all of their time with patients in hospitals, or with healthy population in community (Schaller and James, 2005). Nutritional consultation and advice is sometimes regarded as part of nursing duty (Feresin, 2007, Schaller and James, 2005).

Multidisciplinary primary health care teams face a range of nutritional issues on which they are required to provide advice (Truswell, 2000). Nurses are part of the health team, and are involved in all settings and levels of health care from primary, to secondary, and tertiary (Department of health, 1994).

Nursing students are taught about clinical nutrition in the context of overall health, public health nutrition issues such as obesity and diabetes and their prevention, as well as health promotion (Feresin, et al, 2007). In the clinical context, knowledge and application of basic nutritional concepts such as assessment of a patient's nutritional status, for example, dietary practices are essential for nurses to be able to set therapeutic goals and give dietary advice (Feresin, et al, 2007). The need for nurses to have at least a basic knowledge of nutrition is also recognized by the professional association that represents dietitians in the United States (American Dietetic Association, 1998). Till now there are no published studies examined level of nutritional knowledge and practice for Palestinian nurses. Although nutrition as a course is taught in most Palestinian universities that offer nursing education, some of these universities offer it to nurses as a mandatory course, while other universities do not.

The aim of this study was to assess the nutritional knowledge and practices among nurses in East Jerusalem hospitals. Also it examined the effect of nurses' sociodemographic and educational and professional factors on their level of nutritional knowledge and practice.

This study was done in hospitals located in the East Jerusalem area. East Jerusalem hospitals have nurses from all areas of Palestine, and the job description for nurses in these hospitals includes giving nutritional advice and care to patients, and meal distribution to patients.

1.2 Justification.

There are no known studies till now that have discussed nutritional knowledge and practice for Palestinian nurses. The lack of proper nutritional knowledge and improper nurse's nutritional practice may affect the quality of care offered to patients including their safety and well-being (Whirther and Pennington, 1994). Furthermore this study is very important as it is the first study in Palestine which discussed this issue. It is very beneficial for health institutions, hospitals, educational facilities, and for health personnel as it addressed the level of nutritional knowledge and practices among nurses. Finally the subject of nutrition both globally and locally cannot be underestimated as an issue of public health importance (Schaller and James, 2005).

The result of this current study may be used by stakeholders in hospitals, and in public associations which offer nursing services as an indicator of their nurses' level of nutritional knowledge and practices, thus helping them to plan the educational programs to bridge the gap in nutritional knowledge.

1.3 Problem Statement.

Nurses are expected to detect and manage the health problems of patients in order to provide appropriate therapeutic care during hospitalization. Therefore, nurses should be aware of patients' nutritional needs as well as other clinical problems. The involvement of nurses in patients' nutritional care is considered to be one of the major contributing factors towards patients' nutritional status (Kim and Choue, 2009).

The importance of this study stems from the fact that, the level of Palestinian nurse's nutritional knowledge and practices is not known. The lack of proper nutritional knowledge and improper nurse's nutritional practice may affect the quality of care offered to patients including their safety and well-being. So this current study will be used as baseline study to help stakeholders in hospitals, and in public association which offer nursing services.

1.4 Significance of the problem.

The first expected outcome is to add to the body of knowledge in nutritional knowledge and practice research. It is a subject of public health importance, nurses' nutritional knowledge and practice level and the factors which may have an effect on it are very important to be known to be sure about the safety of nurses on patients regarding this issue as they are in direct contact with patients. In addition for hospitals may also use this information especially for continuous education department to assess if there a need for further training in this area or not. The result of this study may also be used to assess if there is a need to develop the curriculum in nursing education.

1.5 Main objective.

The main objective of this study was to assess the nutritional knowledge and selected practices regarding healthy food and selected clinical nutritional items among nurses working at East Jerusalem hospitals.

1.6 Specific objectives.

- 1- To assess nurses' nutritional knowledge regarding healthy balanced diet, macronutrient, micronutrient, and selected clinical nutritional items among nurses working at East Jerusalem hospitals.
- 2- To assess nurses' nutritional practices toward their patients.
- 3- To assess the effect of factors such as working department, nutritional education, continuous education, level of education, years of experience, place of residency, gender, and age, on nutritional knowledge and practices among nurses working at East Jerusalem hospitals.

1.7 Assumptions.

1. The participants are cooperative and informative.
2. The instruments used in the study are valid and reliable.

1.8 Explanation of structure.

The first chapter presents the background of the study. This chapter also includes the justification of the study, the problem statement, the significance of the study and the expected outcomes.

In the second chapter the background and literature review is presented simple review of the literature about nutritional knowledge and practices for nurses and health team in general.

The third chapter introduced the conceptual framework of the current study. The fourth chapter presented the methodology used, the study design, sampling, research tools as well as timetable, and ethical considerations. The result of the pilot study also addressed.

The fifth chapter presents the results of the study; it gives more detailed information about the level of nurses' nutritional knowledge, and more information about their nutritional practice.

The sixth chapter discussed the finding of the study, and compared these findings with the findings of the previous studies that had discussed this topic, based on the results suggested recommendations were presented at the end of the chapter.

Chapter Two

Literature Review and conceptual framework

2.1 Introduction.

The following chapter presents the role of nurses' nutritional knowledge and practices as part of a holistic-orientated health care. The largest section of this review discussed the socio-demographic factors that might affect nutritional knowledge and practices among nurses. Also it presents the conceptual framework which framework is interwoven in the study objectives, and expected results. It gives an overall summary to all factors that may affect the nutritional knowledge and practices for nurses, and the relationships between these factors. So this will guide us in the analysis.

2.2 Non-communicable disease and nutrition.

According to the World Economic Forum the global burden of non-communicable diseases, cardiovascular, cancer, diabetes, chronic respiratory disease and mental illness could cost 47 trillion dollar by the year 2030 (WHO, 2011b). All of these diseases have modifiable risk factors associated with them; nutrition is at the heart combined with insufficient physical activity and tobacco smoking (WHO, 2011a).

The rapid spread is due to lifestyle transitions which accelerate non communicable diseases, high carbohydrates, high fat, and low fiber diet, with a decrease in physical activity. This is not just applicable to westernized countries with developing countries following suit (Park, 2011).

Non-communicable diseases have severe economic, social and health consequences for society. With this issue at the fore of local, national and international health agendas, research which may open avenues of prevention is of paramount importance (WHO, 2011B, 2011).

Under nutrition could be considered the main major cause of mortality (12.8%) and morbidity (14.3%) all over the world (WHOa, 2011). But developing countries suffer more than developed countries from this problem, 175 million children under the age of five years are estimated to be underweight, and (54%) which equal 6 million children of all deaths in this age group (Pelletier, et al, 1996). For example 2 billion people are at risk from iodine deficiencies, and 250 million school children suffer from vitamin A deficiency, while anemia is a problem for 2 billion children and women (James, et al, 2001). On the other hand, developed countries are perceived to suffer from chronic non communicable diseases like heart diseases, hypertension, stroke, and diabetes. In United States 55% are overweight and 25% re obese (Flegal, et al, 1998). Also Europe countries suffer from high rate of obesity. For example from 1980 to 1990 in England obesity doubled to 16% (Bennett, et al, 1995).

Stunting among Palestinian children below the age of 5 years appears to be on the increase from 7.2% 1996 to 9.4%, and underweight is 4% in 2004 (PCBS, 2004). No information available on malnutrition in adult or elderly (Al Quds University and Johns Hopkins University, 2002). Limited data about Palestinians dietary intake, very high percentages of children aged 6 to 59 months were taking in less than the Recommended Dietary Allowance for energy, protein, vitamin A and E, iron, folate and zinc (Al Quds University, et al, 2004; Al Quds University and Johns Hopkins University 2002).

2.3 Nutritional knowledge and practices for health professional – the route to prevention.

The importance of good nutrition cannot be overestimated, because nutrition contributes to growth and development, and can influence recovery from illness (Coxall, 2008).

Nutrition is a top priority today in society; the public faces the challenge of understanding nutritional knowledge. As a key member of the health care team, nurses are expected to discuss sound nutritional issues (Judi, and Kim, 1994).

Nutrition is very important in nursing care, it is as crucial as medication and other activities of health care (Whirther and Penningto, 1994). The nursing staff in extended care facilities has tremendous responsibilities in this area. They have the greatest amount of personal

contact with the patients and they are the persons on the medical team who will most likely notice such situations as non-medical cues of malnutrition, and need for diet modification (Staneka, et al, 1991). Being in this front line position means they are ideally placed to deliver key messages. However a lack of nutritional education amongst medical professionals has been demonstrated by many studies (Schaller and James, 2005).

Nurses must take care in ensuring their patients have the right meal at the right time. Nurses are one of the main active members in the multidisciplinary team in feeding patients and identifying high risk patients (Holmes, 2006). Nurses must view this as an important part of their daily nursing practice, and as a main part of the patient treatment (Lennard - Jones, 1992).

There is little knowledge available about how the health team implement nutritional protocols for example nutritional screening and its impact on nursing practice, especially where nurses are responsible for screening patients as part of their routine duty (Bailey, 2006). Low compliance in routine patient nutritional screening was mentioned from 2005-2006 in some Australian hospitals (Raja, et al, 2008), suggesting this is a neglected area.

Health workers need to provide dietary and healthy eating advice to patients especially to some patients with certain medical needs for example; patients with hyperlipidemia, diabetes mellitus or obesity (Cadman and Findlay, 1998) but research showed that there were gaps in health professional nutritional knowledge (Cade and O'Connell, 1991). Health care professionals are unsure, when they want to translate knowledge into practical dietary advice (Murray, et al, 1993). Many of the health professional had a nutritional element in their training, but that was not enough for them to be able to provide with appropriate knowledge and skills to give patients dietary advices. It was found 61% of the health professional who provided dietary advice to patients caused confusion, or misleads them (Buttriss, et al, 1994).

A study conducted in Denmark, Sweden and Norway, included 6000 doctors and 6000 nurses, concluded that, lack of nutritional knowledge was the most common cause for insufficient nutritional practice. This study found that 25% of participants had difficulty in identifying patients in need of nutritional therapy, 39% lacked techniques for identifying

malnourished patients, 53% found it difficult to calculate the patients' energy requirement and 66% lacked national guidelines for clinical nutrition (Morten, et al,2008).

In a study conducted in Sheraz, Iran to assess general nutritional knowledge for physicians who work in public and private hospital by self-administered questionnaire. The study focused on specific nutritional areas like hypertension, diabetes and obesity. The result of this study found that, 13.1% of physicians had moderate level of nutritional knowledge, and 86.9% was poor in their nutritional knowledge level (Ahmadi, 2009).

Also a study conducted to determine the nutrition knowledge of physicians in Turkey by means of a questionnaire including multiple-choice questions. This study found that, the average rate of the correct responses was 48.1 ± 13.1 . Also it found that, the nutrition knowledge level of 60.0% of the physicians was moderate, while 33.8% was poor and 6.2% was good (Ozcelik, et al, 2007)

2.4 Socio-demographic variables influencing knowledge and practices pertaining to the study.

In investigating benchmark levels of general nutritional practice, variables considered important are in the main socio-demographic; hospital, unit, age, gender, educational attainment, place of residency, experience, expected level of nutritional knowledge, the extent to which nurses recognize the importance of having basic nutritional knowledge, source of nutritional information, and continuous education.

Nutritional knowledge and practice are a difficult construct to measure. Instruments may probe knowledge about function of nutrients and its relevance to health. Knowledge is influenced by beliefs which may not be evidence based but steeped in culture. Conflicting and evolving nutritional research, food product advertising, the complexities of behaviors needed to achieve healthy eating and strong media coverage of nutrition makes it a challenge for clear messages to translate at the population level (Feresin and Sonzogno, 2007).

2.4.1 Hospital.

The hospital in which participants work may have an effect on nurses' nutritional knowledge and practice. The effect of working hospital on the level of nurses' nutritional practice had been discussed by a study which conducted by Karlstad University in Sweden including 44 nurses, showed significant differences in the level of nutritional practices among nurses according to their working hospital (Persenius, 2006).

2.4.2 Unit.

The unit in which nurses' work may have an effect on nurses' level of nutritional knowledge and practice, as every unit needs special care according to its specialty. The effect of a working unit on the level of nurses' nutritional knowledge and practices was discussed by many studies, with conflicting results, for example a study conducted in North Dakota to evaluate rural nurse's preparation for implementing nutrition intervention and to examine nursing interventions. The researcher found that work setting was significantly correlated with nutrition knowledge (Lindseth, 1990).

Another cross sectional study performed in Shiraz, Iran to assess the nutritional knowledge for 200 randomly selected physicians. The author did not find significant differences according to working unit (Ahmadi, 2009). In addition, another study was conducted to investigate nutritional attitudes and knowledge of nurses working in the hospital environment in Seoul, Korea. The result showed no significant differences in nurses' level of nutritional knowledge according to working unit (Kim, and Chour, 2009). Furthermore the effect of the working unit on nurses' nutritional practices was examined by a cross sectional study. It was conducted in eight metropolitan and regional hospitals in Queensland and three maternity hospitals in Canberra, Australia. The study result showed that, more midwives than other nursing staff reportedly gave nutritional advice at least weekly (midwives 69.4%, other nursing staff 43.6%; (Nowak, 2007).

Also in a cross sectional study performed by using a stratified, random sample of 206 registered nurses at a major academic medical center in New York City assessed nurses' knowledge, attitudes, and practice patterns concerning cholesterol and heart disease. The author found that counseling was significantly associated with different hospital

departments (Wilt, et al, 1990). Another study conducted in order to explore nurses' nutritional knowledge, attitudes and activities was completed by using two data collection methods. The first method is a survey of nutritional documentation relating to nursing activities (141 sets of documentation), this was followed by a questionnaire to all qualified nurses (110 nurses). Analysis showed that the surgical ward nurses had better nutritional practices than the medical ward, they had documented their patients' weight more frequently than the medical ward, this showed as a statistically significant difference in the incidence of patients' weight by ward and by directorate (Perry, 1997).

However in an American survey conducted to determine the degree to which primary-care physicians use clinical nutrition in their practice contradicted this result finding no significant differences in behaviors among the various medical specialties (Levine, et al, 1993).

2.4.3 Gender.

The effect of gender on nurses' level of nutritional knowledge and practice was examined by different studies. For example, a study examined the effect of gender among physicians (who were working in the general and private health sector) in Shiraz, Iran, on their level of nutritional knowledge. The result of the study did not show any differences in nutritional knowledge between males and females (Ahmadi, 2009). Another survey conducted to assess the nutritional knowledge of physicians in Turkey found no statistically significant difference in terms of sex (Ozcelik, 2007).

Another study conducted to assess the effect of gender on level of nutritional practice, it also conducted in order to provide data on medical students' perceived relevance of nutrition counseling, and to report frequency of nutrition counseling. The result of this study showed significant differences in nutrition counseling regarding clinical nutrition according to sex; females were more likely to council than males (Spencer, et al, 2006).

2.4.4 Age.

The age of nurses may have an effect on level of nutritional knowledge and practice for nurses. Many studies examined the effect of age on level nutritional knowledge and

practice for nurses, some of these studies found significant differences, whilst other studies did not find significant differences (Endevelt, 2009. Ozcelik, 2007. Lindseth, 1990). A descriptive study conducted in Israel to assess nurses' knowledge and attitudes regarding nutrition in the elderly included 159 nurses. The study result showed that younger nurses (40 years old) had nutrition knowledge better than those aged 50 or older (Endevelt, 2009). Another descriptive cross-sectional study conducted to assess the nutritional knowledge of nurses in Victoria, Australia included 103 study participants. The researchers found that older nurses (36 years or greater) had statistically significant higher nutritional knowledge scores than younger nurses (Schaller and James, 2005). Further evidence of age disparity comes from a survey which aimed to determine the nutritional knowledge of physicians in Turkey; the study involved physicians who worked in Ankara. The study participants were randomly selected; it included 210 physicians working in various hospitals in Ankara. The author found statistically significant differences in the level of nutritional knowledge according to age (Ozcelik, 2007).

Furthermore a study conducted to evaluate rural nurse's preparation for implementing nutrition interventions and to examine nutrition education practices, based on nutrition knowledge used in health promotion. The researcher used a stratified random sample of rural nurses from hospitals, nursing homes, and community health agencies in North Dakota (n=176). The author did not find a significant relationship between age and nurses' level of nutritional knowledge (Lindseth, 1990).

The effect of age on levels of nutritional practices on medical students was examined. The result showed that freshman-year students were more likely (72%) to find nutrition counseling highly relevant than students who at the time were on ward orientation (61%), or in their senior year (Spencer, et al, 2006).

The effect of age on the level of nutritional practice for physicians had been discussed by an American survey, which was conducted to determine the degree to which primary-care physicians use clinical nutrition in their practice. The result of this study showed that physicians aged 45 year or more were more likely to determine their patients' nutritional status (Levine, et al, 1993).

2.4.5 Educational level.

Educational level for nurses may have an effect of their level of nutritional knowledge and practice (Spencer, et al, 2006. Schaller and James, 2005. Stanek, 1991).The effect of educational level on nutritional knowledge and practice has been investigated. A cross sectional study conducted in Australia showed significant differences in the level of nutritional knowledge according to their educational level. Results showed a statistically significant difference with nurses with a diploma or general nurse training. These nurses had a higher knowledge score when compared to nurses with a degree or postgraduate diploma (Schaller and James, 2005).

A study was performed among nurses working in long term health care facilities, to assess the adequacy of their nutrition education, nutrition knowledge, and general attitudes about the diet of the elderly residents. The researcher examined the relationship between education level and nurses' level of nutritional knowledge. The result of the study did not find a significant relationship between the nutrition knowledge and the level of nursing education (Stanek, 1991). In addition the relationship between nurses' educational level and their level of nutritional knowledge in another study. The researcher found no statistically significant correlation between educational level and nurses' level of nutritional knowledge (Lindseth, 1990).

Another cross sectional study was conducted to assess the factors affecting graduating nurses' nutritional knowledge and looking at the implications for continuing education. The author found no significant differences in the nurses' nutritional knowledge scores according to the level of education (Lindseth, 1994).

On the other hand the effect of educational level on level of nutritional practice had been discussed by another American study. It showed that, students intending to specialize in primary care were much more likely to find nutrition counseling highly relevant (79%) than were those intending to subspecialize (45%), and they were more likely to counsel (Spencer, et al, 2006).

2.4.6 Place of residency.

The effect of place of residency on level of nutritional knowledge for nurses has been discussed by a cross sectional study. It was conducted to assess the nutritional knowledge of nursing students relating to their semester class and to selected socioeconomic features. The study found that there is no significant relationship between the nutrition knowledge and the place of origin (Yfanti, 2011). Furthermore a study was conducted among nurses who work in long term health care facilities, the result showed no differences in the level of nutritional knowledge according to place of residency (Stanek, et al, 1991).

2.4.7 Years of experience.

Different studies tried to examine the effect of years of experience on nurses' nutritional knowledge level. One study conducted on American hospitals included graduating nurses from hospitals, nursing homes, and community health agencies found significant differences between nurses' nutritional knowledge scores when comparing their years of health care work experience (Lindseth, 1994). Another study conducted to investigate nutritional attitudes and knowledge of nurses working in the hospital environment in Seoul, Korea did not find any significant differences between nurses' level of nutritional knowledge and experience (Kim and Chour, 2009). No significant correlation between experience and level of nutritional knowledge was found in an American study while years since graduation from a nursing education program was significantly correlated with nutrition knowledge. It was found 6-10-years and 11-20-years since graduation significantly increased rural nurses' nutrition knowledge (Lindseth, 1990). Another study included nurses working at long term health care facilities found no significant relationship between the nutrition knowledge and number of years in practice (Stanek, et al, 1991).

The effect of experience on nurses' nutritional practices had been discussed by an intervention study which conducted to test a new evidence based nutrition education program for home nurses. The author found that nutritional practice for those who worked longer years was better than those who worked for a shorter period (Crogan and Evans, 2001).

2.4.8 Educational programs.

The effect of college curriculum inclusion of nutrition courses on the level of nutritional knowledge and practice for nurses towards their patients has been discussed by numerous studies. Some of these studies found significant differences relating to this variable, while other studies did not find any differences in level of nutritional knowledge and practice.

The relationship between college curriculum and level of nutritional knowledge has been examined by a cross sectional study. The study investigated the nutritional attitudes and knowledge of nurses who were working in the hospital environment. This study included 221 nurses, from the university hospital in Seoul, Korea. Only 30.3% of respondents stated that they had a chance to take nutritional courses as part of their college education (Kim and Chour, 2009).

Also the effect of mood of studying nutrition during college (method of training) had been discussed by different studies. No statistically significant relationship was found in nurse's nutritional knowledge level when comparing methods of studying nutrition during basic nurse training (Schaller and James, 2005). Another cross sectional study from two Midwestern States found no significant differences in the nurses' nutritional knowledge scores according to formats of nutrition course they studied. Graduating nurses who had a separate nutrition course scored highest on the nutrition knowledge test (Lindseth, 1994).

2.4.9 Expected level of nutritional knowledge.

Expected level of nutritional knowledge may have an effect on level of nutritional knowledge and practices for nurses. In a recent study examined the relationships between observed and expected levels of nutritional knowledge. The study results showed that there is no significant relationship between the nutrition knowledge and the observed and expected level of knowledge (Yfanti, 2011).

In another study conducted to assess knowledge and beliefs in nutrition, including medical practitioners, medical students in the clinical years of their course, and nursing students who had completed their basic course and who were working in the wards of an adult

general hospital. It was found that 88% of participants thought they had good level of nutritional knowledge about properties of water and the necessity for meat products in the diet, but the mean accurate level of knowledge was 79% for physicians, 76% for medical students but this difference was not statistically significant. Among student nurses the mean level was 52%. Physicians and nurses showed no correlation between the level of perceived knowledge and accuracy. Among medical students there was a significant positive correlation between knowledge and accuracy (Dugdale, et al, 1979).

The relationship between expected level of nutritional knowledge and nutritional practices has been discussed in a study. The researcher used a cross sectional design to study doctors and nurses' self-reported knowledge in nutritional practice, with focus on European Society of Clinical Nutrition and Metabolism guidelines for nutritional screening, assessment and treatment. This study included nurses from Denmark, Sweden and Norway, and it included 6000 doctors and 6000 nurses. The author found that participants who thought they had good nutritional knowledge, they had better nutritional practice and participants who described themselves as poor in their nutritional knowledge had poor nutritional practice (Morten, et al, 2008).

2.4.10 Importance of having basic nutrition knowledge for nurses.

Nurses' perception of the importance of having basic nutritional knowledge for their patients may have an effect on their level of nutritional knowledge. The relationship between nurses believing in the importance of having basic nutritional knowledge and level of nutritional knowledge was examined by a study which was conducted in Seoul, Korea. In this study most of the nurses (82.4%) agreed to the necessity of nutritional education in their curriculum. Finally this study found that nurses who felt the necessity for nutritional education in the college curriculum replied with acceptable answers more often than those who did not (Kim and Chour, 2009).

2.4.11 Source of nutritional information.

The source used by nurses to get their nutritional information for their patients may have an effect on their level of nutritional knowledge and practice. A study examined the relationship between level of nutritional knowledge and practices for the health team towards their patients. For example a cross sectional study included 200 randomly selected

physicians conducted in Iran. The author found significant differences in level of nutritional knowledge according to the source the physicians used to get their patient nutrition information. The author found statistically significant differences in physicians who are using internet as a source for nutritional information (Ahmadi, 2009).

The effect of the source used by nurses for nutritional information on their level of nutritional practices was examined by a cross sectional study. The study examined the general food and nutrition-related beliefs and knowledge of nursing professionals attending post-partum women (n= 362). This study conducted in eight metropolitan and regional hospitals in Queensland and three maternity hospitals in Canberra at Australia. 51.4% of participants used professional training (university studies, nursing studies... etc.) to get nutrition information. The result of this study showed no significant differences between sources of nutrition information between those who frequently gave nutrition advice and those who did not (Nowak, et al, 2007).

In a survey conducted to determine the degree to which primary-care physicians use clinical nutrition in their practice significant differences were found between physicians' nutritional practices according to the source used for nutritional information. The study included 376 physicians. The author found that physicians who obtained their information about clinical nutrition from nutrition-specific sources, such as nutrition journals, nutrition texts, nutrition seminars or conferences, and nutritionists or dietitians significantly tended to determine their patients' nutritional status, to advise and teach desirable health habits, to determine their patients' history and physical status, and to identify patients at risk for malnutrition more frequently than did their peers (Levine, et al,1993).

2.4.12 Continuous education.

The effect of continuous education on level of nurses' nutritional knowledge was examined by a Spanish study conducted in the Basque Country, Spain (n= 16 nurses and 28 nursing assistants). The study was conducted to test if cooperative learning strategies help to increase nutrition knowledge of nurses and nursing assistants caring for the elderly in different institutional communities. The study result showed a significant increase in basic nutrition knowledge for all participants from a pre-test mean score of 64.57 ± 11.62 to a post-test mean score of (74.52 ± 5.31) (Arroyo, 2008).

While another study included 30 general practitioner nurses from United Kingdom to assess the changes in Practice Nurses' (PNs) nutrition knowledge and confidence when giving dietary advice to patients, following training from a dietitian. The researchers assessed the baseline nutritional knowledge by a pretest questionnaire. The result of the pretest showed that 27% of participants had good nutritional knowledge before training, while 88% of them had good nutritional knowledge post training. The mean difference (95% confidence interval) pre and post-training was 11.6 (7.8, 15.4). This study concluded that, nutrition training improved nurses' knowledge and confidence in providing accurate and consistent dietary advice. It also recommended training for all primary health worker including nurses to improve their nutrition knowledge (Cadman and Findlay, 1998).

Another study examined the effect of continuous education on the level of nurses' nutritional knowledge. The result of analysis did not find any statistically significant differences according to attendance at nutrition education sessions in the past two year's verses no attendance (Schaller, C and James, E, L, 2005). Also no significant differences were found by a study which examined the effect of continuous education on level of nurses' nutritional knowledge (Lindseth, 1990).

Furthermore no significant differences in nurses' nutritional knowledge after nutritional training were found. Analysis showed that the mean of nutritional knowledge improved to 66% (SD= 15) in post-test from 56 % (SD= 14.6) in the pre-test. In spite of this improvement in the nutritional knowledge there was no significant difference. Although despite an educational program the deficit in nutritional knowledge for nurses was not eliminated (Crogan and Evans, 2001).

Finally the effect of continuous education on nutritional practices was examined by a qualitative study, conducted in Melbourne, Victoria, Australia to explore nurses' views and practices regarding use of the Malnutrition Screening Tool (MST) and the Malnutrition Universal Screening Tool (MUST) in acute hospital wards. This study found that the initial screening rate was 25% (MST) and 61% for (MUST). After nurse education and support over four months in wards using the MUST, compliance improved to 46% for (MST) and 70% for (MUST). The study results indicate a need for further nursing staff education about the purpose and correct use of nutrition screening tools (Raja, et al, 2008).

2.5 Conceptual framework

The conceptual framework presents the relationships between different study variables, furthermore it summaries all factors that may have an effect on nurses level of nutritional knowledge and practices.

2.6 The conceptual framework diagram.

The contributing factors affecting nurses' nutritional knowledge and practices can be divided into two main factors. Sociodemographic factors such as gender, level of education, place of residency, and years of experience. The other factors which may affect nurses nutritional knowledge and practices is hospital environment, which include many factors such as the presence of continuous education in the hospital, the presence of clear job description, educational program, and the type of working department in the hospital.

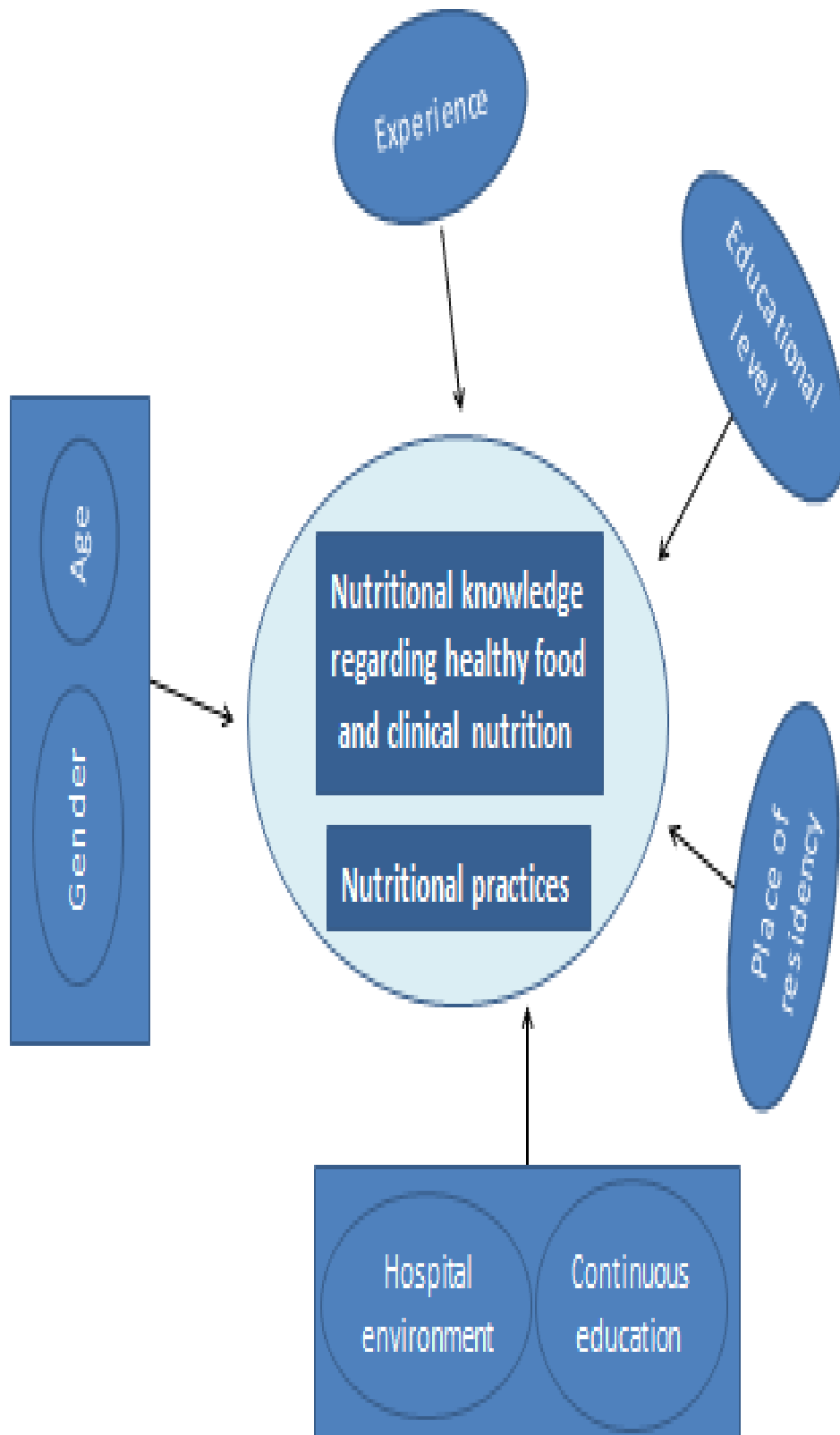


Figure 2.1: Conceptual framework (design based on literature).

2.7 Conclusion.

This literature review summarized the importance of nutrition as a cause of non-communicable diseases, and the role nurses may play in helping to tackle this most urgent public health issue. The literature regarding nutritional knowledge and practice for nurses and health team toward their patients has also been presented. It discussed all expected factors which may have an effect on nurses' level of nutritional knowledge and practices. Some of these factors were found to have a significant effect while others did not; many results were conflicting. These factors include experience, educational program, sociodemographic factors, hospital environment, and the status of their continuous education. The factors which may affect nurses' nutritional knowledge and practices are summarized in the conceptual framework diagram.

Chapter three

Methodology

3.1 Introduction.

The objective of the study is to assess the nutritional knowledge and practices regarding healthy food and selected clinical nutritional items for nurses working at East Jerusalem hospitals. In this chapter the methodology used to conduct this study is presented. Starting with the study design, population, inclusion criteria, exclusion criteria, data collection methods, the questionnaire, study limitations, expected problems, and ending with data analysis. Also this chapter includes ethical considerations, and details of the pilot study that has been done.

3.2 Study design.

This is a descriptive cross sectional study, which is conducive to the study aims. As the study assessed the situation which already exists so this design is suitable. Furthermore, it is relatively inexpensive and takes up little time to conduct. One of the disadvantages of this design is the fact that it is only a snapshot: the situation may provide differing results if another time-frame had been chosen. The study was conducted between February 2011 to February 2013.

3.3 Study setting.

The study was conducted at East Jerusalem Hospitals including Al-Makased Hospital, Saint Joseph Hospital, Saint John Ophthalmology Hospital, Augusta Victoria Hospital, and Red Crescent Hospital. These hospitals are the main Palestinian health hospitals in East Jerusalem and employing significant number of health professionals including nurses. All the hospitals share the same conflicting situations and serving the same population (Palestinians living in West Bank, Gaza and East Jerusalem) who live in the similar conditions. Also all of these hospitals are united under the name of East Jerusalem hospitals network. This network was organized to cover all specialty and subspecialty in health care, all aforementioned hospitals try to follow the same job description for the health team which includes nurses (<http://www.fhfpal.org>) see table (3.1).

Table (3.1): Baseline for hospital included in this study.

Hospital name	Years establishment	location	Number of beds(capacity)	Area of specialty
Al-Makassed Islamic Charitable Hospital	1956	Mountain of Olives	220	General hospital
Augusta Victoria Hospital	1950	Mountain of Olives	100	Oncology, renal dialysis
Saint John's Ophthalmic Hospital	1882	Sheikh Jarrah	70	Ophthalmology
Saint Joseph Hospital	1948	Sheikh Jarrah	70	General hospital
Palestine Red Crescent Maternity Hospital	1953	In the Suwaneh neighborhood	30	Maternity hospital

(Progress Report of the Health Sector in East Jerusalem, 2000).

3.4 Population.

All nurses working at East Jerusalem hospitals (466 nurse), nurses who participated in the pilot study were not included. Included are nurses in medical, surgical, orthopedic, pediatric, obstetric gynecology ward, intensive care unit, coronary care unit, pediatric open heart, adult open heart, pediatric intensive care unit, neonatal intensive care unit, labor room, normal nursery, geriatric ward, ophthalmic units, and renal dialysis units.

3.5 Inclusion criteria.

- 1- Nurses (staff nurse, practical nurse).
- 2- Experience more than 6 months, because before this period nurse will under evaluation by hospital administration.
- 3- Work at least 30 hour weekly, this mean nurse is working full time, and only in one of East Jerusalem hospitals.
- 4- Work in one of the East Jerusalem hospital for 6 months before the study.
- 5- To be in direct contact with the patients

3.6 Exclusion criteria.

- 1- Administration team.
- 2- Aid nurse: because they just work in simple nursing issue, and their education did not focus in this issue.

- 3- Have experience less than 6 months: this mean nurse is under evaluation to be an employee in the hospital or not.
- 4- Work less than 30 hour weekly: this means nurse work as part time, and may work in other hospital in East Jerusalem.
- 5- Did not work in one of East Jerusalem hospitals.

3.7 Data collection methods and procedures.

A Self-administered questionnaire was used to collect data from nurses. The researcher distributed the questionnaire to the participant and wait in an area around the nurse to fill it, then the researcher collect it from nurses at the same day. Data were collected from the hospitals wards where nurses are working during the period September 2011 to November 2011.

3.8 The Questionnaire.

The questionnaire was self-administered and was divided into two major parts. The first part included questions about socio-demographic factors which include age, sex, place of residency, years of experience, and level of education. Information about working department. Also it included information about whether the nurse has received nutritional education or not during their education or training. The second part includes questions about nutritional knowledge and practice for nurses. General nutritional knowledge regarding healthy food groups and selected clinical nutritional items see table (3.2).

Table (3.2): Distribution of instrument questions according to areas of nutrition practice and knowledge.

Number	Section	Questions
1	Nutritional practices.	9-21
2	Nutritional compounds.	23a,b,c,d,e,f,g, 24, 30, 32, 33, 35, 36, 37.
3	Balanced diet and its conditions.	22, 23e.
4	Rich sources of calcium and factors affecting its absorption.	25, 26.
5	Rich sources of iron and factors affecting its absorption	27, 28.
6	Food pyramid	29
7	Meaning of malnutrition and example of it	38, 40, 45, 51.
8	selected clinical nutritional items	31, 34, 39, 41, 42, 43, 44, 46, 47, 48, 49, 50, 52, 53, 54.

The questionnaire was mainly adopted from a questionnaire that was adapted and modified from Al-Numeir, 2004 and from Agha, 2009. The section which measures the selected clinical nutritional items part is that which was adopted from Al-Numeir, 2004, the section which measures healthy food groups and micronutrients was adopted from Agha, 2009. This instrument is modified to reflect Palestinian terminology, current scientific accuracy of questions and answers and for relevance of questions to the Palestinian context. Modification of existing instruments to reflect cultural differences and/or terminology are acceptable as long as the modifications do not change the meaning of the item (Mueller, 1986). The questionnaire of the final form was in English language [Appendix A], and then, the questionnaire was translated into Arabic (Appendix B).

3.9 Study limitations.

- 1- The study is limited to East Jerusalem area.
- 2- Some nurses refused to participate in the study, 4 nurses from Al-Makased hospital refused to participate in the study.
- 3- Some nurses become anxious because the questionnaire assessed the knowledge, they deal with the questionnaire like an exam.
- 4-It was difficult to assess nurses' nutritional practice, because it was self-reported.
- 5-The design was cross sectional study design.

3.10 Validity of the instrument.

Validity refers to the degree to which the instrument measures what it is supposed to measure (Polit, 2006). The questionnaire was reviewed by 5 specialists in nutrition, and research experts (Appendix C) to determine whether the items of the questionnaire were relevant to the study purpose. Items were slightly modified according to the experts' recommendations. Main modifications were on formatting, rearrangement of the items, and language editing. No substantial modifications were recommended. A pilot study was done to evaluate the questionnaire used in the actual study. A total number of 15 questionnaires were distributed to nurses who were non-randomly selected from East Jerusalem hospitals to take part in the pilot study, so these nurses were not included in the study. 15

questionnaires were returned. Some questions were modified as seen appropriate, and some questions were deleted.

4.11 Reliability of the instrument.

Cronbach Alpha was used to determine the reliability of the instrument. The reliability Coefficient for all items is 0.81. Table (3.3) showed that the reliability coefficient values were high for all sub-items.

Table (3.3) Reliability coefficient for nutritional knowledge and practice for nurses

Standard	Number of items	Reliability Coefficient
Nutritional practices for nurses	13	0.67
Healthy food groups	53	0.74
Selected clinical nutritional items	20	0.73
Overall scores	86	0.81

3.12 Study variables.

The study consists of independent and dependent variables, which are:

3.12.1 Independent Variables.

- a. The demographic characteristics of the nurses including working hospital, working department, gender, level of education, place of residency, number of years of experience, and age.
- b. Educational program, if it included nutritional courses or not, number of nutritional courses that nurses had studied during their nursing education, method of training nurses had been received during their study, and their satisfaction with their nutrition education.
- c. Professional characteristics, nurses' description of their level of nutritional knowledge, their descriptions of the importance of having basic nutritional knowledge for nurses, resources used by nurses to get nutrition information for their patients, and number of nutrition training courses given to nurse by the hospital which he\she works in.

3.12.2 Dependent Variables.

- a. Nutritional practices for nurses toward their patients (Q9- 21).
- b. Nutritional knowledge regarding healthy food groups and selected clinical nutritional items (Q22-74).

3.12 Operational definitions

- 1- **Knowledge:** is the level of knowledge about healthy food groups, selected clinical nutritional items, macronutrients, and micronutrients. The researcher assess the nutritional knowledge by self-administered questionnaire, 72 questions were used. If the nurse know the right answer for 35 question or less, then the nurses will be poor in his level, if the nurse know the right answer for 36 to 57 question, then the nurses will be classified as fair level, and if the nurses know the right answer for 58 question or more he\ she will be classified as good level of nutritional knowledge.
- 2- **Practices:** is the level of nutritional practice for participated nurses, it was measured through the questionnaire. The researcher assess the nutritional practice by self-administered questionnaire, 12 questions were used. Percentage and crude numbers were used to describe the level of nutritional practice.
- 3- **Working department:** refers to the department or ward where nurse works, and it could be an open department like a medical or surgical ward, or a closed ward like intensive care units, coronary care units, renal dialysis units, or it could be an outpatient department like clinics, or the emergency room.
- 4- **Place of residency:** is the place where the person lives and it could be a city, village, or camp, because the Palestinian community is mainly composed from these three communities.
- 5- **Nutritional training:** this refers to the nurse's level of nutritional training as part of their nursing education. It is important to determine this because the nurse may

have studied either no nutritional content, only theoretical nutrition, practical nutrition (in a hospital environment), or a combination of these.

3.13 Statistical analysis.

The data were checked for entry errors (data clearance). Characteristics of the data were obtained through descriptive statistics (frequencies), the relationship between variables were analyzed by using the chi-square test (χ^2 test). The data were analyzed using the Statistical Package for Social Sciences (SPSS), version 18.

3.14 Ethical considerations.

Formal papers were sent by the university to the hospitals administrations, to get permission to start collecting the data from nurses (Appendix D). After that, the questionnaires were distributed to the nurses, and the research goals and importance of the study was explained to them. Participants ensured anonymity and confidentiality, and the result and conclusion were made through information received which was used for research purposes only. Participants were informed about their full right to withdraw at any stage of their participation. Also the participants were given a consent form with every questionnaire given to them.

3.15 Pilot study.

Fifteen questionnaires were distributed to nurses to check the feasibility and improve the design. And the researcher asked those who received the questionnaire if they had any suggestion to improve it like spelling or anything else. Minor modifications were made to the order of questions improving the flow of the questionnaire.

3.16 Scoring system for level of nutritional knowledge.

There were 72 questions, each of which had three choices or more, in the nutrition knowledge section. From these choices only one choice is the right answer. Each correct answer was assigned 1 point and the nutrition knowledge level was assessed out of 72 total

points. Accordingly, the nutrition knowledge levels were written as scores as shown in table (3.4).

The researcher used these levels to be suitable for the educational level of all of the participants in this study (diploma, bachelor, and post graduate studies). The researcher searched in many studies which assessed the level of nutritional knowledge for health team (nurses, physicians), but there is no scale founded to be suitable for Palestinian educational culture. So this scale was adopted from the scale of scoring in Palestinian nursing colleges for nutrition course.

Table (3.4) Scoring system to be used for level of nutritional knowledge.

Level	Minimum percent	Maximum percent
Poor	0%	49%
Fair	50%	79%
Good	80%	100%

3.17 Evaluation system for nurses' nutritional practice.

Nurses' nutritional practice evaluated by using descriptive statistics, percentage and crude numbers were used to describe level of nutritional practice for nurses. The relationship between nurses' level of nutritional practice, their sociodemographic factors and educational and professional characteristics were assessed by using the chi-square test (χ^2 test).

3.18 Conclusions.

After completion of preparation for this study, much evidence proved the importance of performing this study. In preparation for this study it was found that it was possible to assess the level and factors that may have an effect on, nurses' nutritional knowledge and practice, using cross sectional design.

Chapter four

Results

4.1. Introduction.

In this chapter the results of the study are presented. It includes description of the characteristics of the study participants, nurses' level of nutritional knowledge regarding healthy food groups, clinical nutrition, and nurses' nutritional practices. In addition this chapter presents the association between nurses, nutritional knowledge, and nutritional practices and study variables

4.2. Characteristics of the study participants.

All nurses in this study were from East Jerusalem hospitals. 466 nurses participated in this study (274 from Al-Makased hospital, 35 from Red Crescent society hospital, 84 from Augusta Victoria hospital, 35 from St-John hospital, 38 from St- Joseph hospital). Out of 466 questionnaires distributed 407 were returned back. The overall response rate was (87.3%). The response rate and the percentage of participants stratified by hospital are shown in table (4.1).

Table (4.1): Specific response rate for the study participants according to the hospitals.

Hospital	Total number of participant nurses	Response rate N (%)
Al-Makased hospital	274	247 (90.1)
Red Crescent society hospital	35	26 (74.3)
Augusta Victoria hospital	84	69 (82.1)
Saint John hospital	35	29 (82.9)
Saint Joseph hospital	38	36 (94.7)
Total number	466	407 (87.3)

The demographic characteristics of the study participants are presented in table (4.2). Males and females were almost equally presented in this sample; about half of the participants (48.6%) live in cities, while the vast majority of the study participants (60.7%) were from Al-Makased hospital. About one third (37.6%) of the participants were working in open wards, and 30.5% were working in intensive care units. More than half (59.2%) of

the participants had a bachelor degree; also 41.3% of the participants had an experience of 5 years or less, and 61.2% were less than 35 years old.

Table (4.2): Demographic characteristics of the study participants.

Demographic variables		N*	(%)
Hospital	AL-Makassed Islamic Charitable hospital	247	60.7
	Red Crescent Society hospital	26	6.4
	Augusta Victoria hospital	69	17
	St- John eye hospital	29	7.1
	St- Joseph hospital	36	8.8
Working unit	Intensive care ward	124	30.5
	Open ward	153	37.6
	Emergency ward	16	3.9
	Outpatient clinic	20	4.9
	Other**	94	23.1
Gender	Male	190	46.7
	Female	217	53.3
Educational level	Diploma	86	21.1
	Bachelor degree	241	59.2
	Master\ High diploma	80	19.7
Place of residency	City	198	48.6
	Village	185	45.5
	Camp	24	5.9
Experience (years)	5 years or less	168	41.3
	6 years -10 years	67	16.5
	11 years- 15 years	54	13.3
	16 years- 20 years	54	13.3
	more than 21 years	64	15.7
	$\bar{X} \pm SD$ 10.88±9.18		
Age (years)	20-24 years old	87	21.4
	25-29 years old	110	27
	30-34 years old	52	12.8
	35-39 years old	35	8.6
	40-44 years old	55	13.5
	45 years or more	68	16.7
	$\bar{X} \pm SD$ 33.46±9.95		

*: N= 407, **: Operation room, Labor room, Normal nursery care.

Table (4.3) shows the educational and professional characteristics of the study participants, from the 407 participants, 94.1% had nutrition courses during their nursing study curriculum, while 77.9% took only one nutrition course during their study. The majority of participants (66.1%) thought that, their training in the nutrition courses during their study was theoretical. 43.2% of the participants were satisfied with their nutrition education, and 49.1% reported having fair nutritional knowledge. The vast majority of the

study participants (93.6%) reported it is important for nurses to have basic nutritional knowledge; 22.6% used internet as source of dietary information for their patients, while 23.3% obtained their information from a dietitian. 88.2% of participants had never attended nutrition training courses during their work.

Table (4.3) Educational program and professional characteristics of the study participants.

Professional characteristics of the study participants	Answer	N= 407	Percent %
Did your study curriculum have nutrition courses?	Yes	383	94.1
	No	24	5.9
How many nutrition courses have you taken during your study?	1	317	77.9
	2	61	15
	3	5	1.2
	More than 3	0	0.00
Do you think that your training in the nutrition courses during your study was	Theoretical	269	66.1
	Practical	18	4.41
	Theoretical and Practical	75	18.4
	None of them	45	11.1
How can you describe your satisfaction with your nutrition education?	Satisfied	176	43.2
	Unsatisfied	137	33.7
	Unsure	94	23.1
How can you describe your nutritional knowledge?	Good	152	37.3
	Fair	200	49.1
	Poor	55	13.5
How would you rate the importance of having basic nutritional knowledge for nurses?	Important	381	93.6
	Not important	11	2.7
	I do not know	15	3.7
From where do you get your nutrition information for your patient?	Internet	92	22.6
	Dietitian	95	23.3
	Nutrition Fact Sheets	27	6.6
	Other Nurses	30	7.4
	Newspapers	11	2.7
	Media (Radio, TV)	25	6.1
How many times the hospital you work at did provide you with nutritional training courses?	Books	17	31.2
	Never	359	88.2
	Once	35	8.6
	Twice	13	3.2

5.3 Nutritional knowledge of nurses.

The level of nutritional knowledge of the participants is shown in table (4.4). The vast majority (86.8%) of the nurses had a fair level of nutritional knowledge.

Table (4.4): level of nutritional knowledge of study participants.

Knowledge level	N= 407 (%)
Poor	49 (12)
Fair	353 (86.8)
Good	5 (1.2)

The description of mean and standard deviation for specific nutritional issues were shown in table (4.5). As shown the total mean percentage score for knowledge items was (\bar{X} 43.96±7.45). Which was more than average for nutritional compounds, balanced diet and its conditions, rich sources of calcium and factors affecting its absorption, rich sources of iron and factors affecting its absorption, food pyramid, and meaning of malnutrition and example of it? But it was less than average in one issue which is selected clinical nutritional items (\bar{X} =6.23±2.5).

Table (4.5): Mean and standard deviation for specific nutritional issues.

Knowledge item	Mean	Standard deviation	percent
1- Nutritional compounds	9.97	2.64	59%
2- Balanced diet and its conditions	8.87	1.77	74%
3- Rich sources of calcium and factors affecting its absorption	5.56	1.3	79%
4- Rich sources of iron and factors affecting its absorption	7.71	1.8	70%
5- Food pyramid	1.46	0.51	73%
6- Meaning of malnutrition and example of it	5.42	1.45	68%
7- Selected clinical nutritional items	6.23	2.5	42%
Total Knowledge score	43.96	7.45	61%

The level of nutritional knowledge of the participants regarding balanced diet and its conditions are presented in appendix E. Analysis showed that, the majority of participants had a good level of knowledge regarding healthy food and its conditions. But only 6.4% knew that, healthy balanced diet should contain all nutrients not some nutrients according to the human needs.

In addition the levels of nutritional knowledge regarding food groups are presented in appendix F. A poor level of nutritional knowledge regarding food groups was observed. Few nurses knew the required daily amount of water for an adult male (33.4%); the type of fatty acids in olive oil (30.2%); the richest source of vitamin B12 (43.2%); the differences between unprocessed vegetable oil and hydrogenated fats (11.1%). A very high proportion of the participants did not know the richest source of lycopene (20.4%), and almost one third knew the main fatty acid in eggs.

The levels of nutritional knowledge regarding micronutrients are presented in appendix G. A fair to good level of knowledge about micronutrients like calcium and iron and factors affecting their absorption is seen. However, less than two thirds of participants (61.4%) knew that the traditional bread is a poor source of calcium, while one third of participants (33.7%) knew that eggs are a rich source of iron and that milk and dairy products decrease iron absorption.

The levels of nutritional knowledge of participants regarding the food pyramid are presented in appendix H. 36.4% of them knew the food groups of food pyramid. Furthermore the levels of nutritional knowledge for participated nurses regarding selected clinical nutritional items are presented in appendix I. Analysis showed that, most of participants had a poor level of knowledge (42%) regarding selected clinical nutritional items. Only 31.4% of participants knew that, 25-30% of total body energy should come from fats, in addition just 25.8% knew iron is not an antioxidant. Also only 10.6% knew which food has the lowest glycemic index. Furthermore 17.9% of participants knew that short-term diets are usually successful at achieving weight lose because they cause the body to loss water, while 8.4% knew that protein excess may increase loss of body calcium, and 40% knew that, potassium protective against hypertension. Furthermore 35.9% of participants knew that, soluble fibers is helpful in lowering the blood cholesterol level, in contrast 46.2% of participants knew that omega 3 fatty acid can prevent

thrombosis , and 18.9% of participants knew that, alcohol can raise the blood HDL-cholesterol level. Just 47.7% of the participants knew that, vitamin B1 deficiency may develop in alcoholic, while 45.9% knew that, foliate is strongly associated with the prevention of neural tube defects, in addition only 10.6% knew that, ice cream is the food that has the lowest glycemic index, furthermore 43.2% of the participants knew that, the status of the body weight of an adult whose body mass index is rated between 25.0-29.9 kg/m² is overweight, and 29% of the participants knew that, vitamin A is the vitamin that has the most toxic effect when consumed excessively for a long time.

4.3.1 Level of nurses' nutritional knowledge according to study variables.

Level of nutritional knowledge and its relation with demographic variables is shown in table (4.6). Results showed that, there was no statistically significant difference in the level of nutritional knowledge regarding working hospital, working unit, place of residency, years of experience, educational level and age. But results showed a significant relationship between nutritional knowledge regarding gender, as there was better level of nutritional knowledge for female nurses than male nurses (P=0.025).

Table (4.6) Level of nutritional knowledge by participants' demographic variables.

Demographic variables	The knowledge level	N 407 (%)	P value*
Hospital			0.48
AL-Makassed Islamic Charitable hospital	Poor	29 (11.8)	
	Fair	215 (87)	
	Good	3 (1.2)	
Red Crescent Society hospital " Alhelal hospital"	Poor	2 (7.7)	
	Fair	23 (88.5)	
	Good	1 (3.8)	
Augusta Victoria hospital	Poor	10 (14.5)	
	Fair	59 (85.5)	
Saint John eye hospital	Poor	6 (20.7)	
	Fair	23 (79.3)	
	Good	0 (0.00)	
Saint Joseph hospital	Poor	2 (5.5)	
	Fair	33 (91.7)	
	Good	1 (2.8)	
Unit			0.28
Intensive care unit	Poor	14 (11.3)	
	Fair	109 (87.9)	
	Good	1 (0.8)	
Open word	Poor	16 (10.5)	
	Fair	135 (88.2)	

	good	2 (1.3)	
Emergency word	Poor	5 (31.3)	
	Fair	11 (68.8)	
Outpatient clinic	Poor	1 (5)	
	Fair	18 (90)	
	Good	1 (5)	
Others**	Poor	13 (13.8)	
	Fair	80 (85.1)	
	Good	1 (1.1)	
Gender			0.025†
Male	Poor	31 (16.3)	
	Fair	158 (83.2)	
	Good	1 (0.5)	
Female	Poor	18 (8.3)	
	Fair	195 (89.9)	
	Good	4 (1.8)	
Educational level			0.055
Diploma	Poor	14 (16.3)	
	Fair	72 (83.7)	
Bachelor degree	Poor	30 (12.5)	
	Fair	209 (86.7)	
	Good	2 (0.8)	
Master\ High diploma	Poor	5 (6.3)	
	Fair	72 (90)	
	Good	3 (3.7)	
Place of residency			0.93
City	Poor	25 (22.6)	
	Fair	170 (85.9)	
	Good	3 (1.5)	
Village	Poor	22 (11.9)	
	Fair	161 (87)	
	Good	2 (1.1)	
Camp	Poor	2 (8.3)	
	Fair	22 (91.7)	
Years of experience			0.66
5 years or less	Poor	24 (14.3)	
	Fair	143 (85.1)	
	Good	1 (0.6)	
6- 10 years	Poor	6 (9)	
	Fair	59 (88)	
	Good	2 (3)	
11- 15 years	Poor	4 (7.4)	
	Fair	50 (92.6)	
16- 20 years	Poor	6 (11.1)	
	Fair	47 (87)	
	Good	1 (1.9)	
More than 21 years	Poor	9 (14.1)	
	Fair	54 (84.4)	
	Good	1 (1.6)	
Age			0.95
20- 24 years	Poor	8 (9.2)	
	Fair	78 (89.7)	
	Good	1 (1.1)	
25-29 years	Poor	17 (15.5)	
	Fair	92 (83.6)	
	Good	1 (0.9)	

30-34 years	Poor	5 (9.6)
	Fair	46 (88.5)
	Good	1 (1.9)
35-39 years	Poor	3 (8.6)
	Fair	32 (91.4)
40- 44 years	Poor	6 (10.9)
	Fair	48 (87.3)
	Good	1 (1.8)
45 years or more	Poor	10 (14.7)
	Fair	57 (83.8)
	Good	1 (1.5)

*: Chi-square test. †: significant at level of significance $\alpha < 0.05$

** : Operation room, Labor room, Normal nursery care.

Level of nutritional knowledge according to educational and professional characteristics for nurses is shown in table (4.7). The result indicated a significant relationship between level of nutritional knowledge and curriculum content to nutritional courses ($P= 0.025$). There was better level of knowledge for those whose curriculum contained nutritional courses. Also there was significant relationship according to participant mood of training in the nutrition courses during their study ($P= 0.012$), better level of knowledge was found for those who had both theoretically and practically nutrition courses. There was significant relationship according participant rating to the importance of having basic nutritional knowledge for nurses ($P= 0.001$), better level of knowledge for those who believe it is important for nurses to have basic nutritional knowledge more than those who do not believe in that.

Table (4.7): Level of nutritional knowledge for nurses according to their educational and professional characteristics.

Professional characteristics	Knowledge level			Total Percent N (%)	P value*
	Poor N (%)	Fair N (%)	Good N (%)		
Did your study curriculum have nutrition courses?					0.026†
Yes	42 (11)	336(87.7)	5(1.3)	383 (94.1)	
No	7 (29.2)	17(70.8)	0 (0.00)	24 (5.9)	
If yes, how many nutrition courses have you received during your study					0.9
1 nutrition course	34 (10.7)	279 (88)	4 (1.3)	317 (82.8)	
2 nutrition courses	8(13.1)	52(85.2)	0 (0.00)	61 (15.9)	
3 nutrition courses	0(0.00)	5(100)	0 (0.00)	5(1.3)	
Do you think that your training in the nutrition courses during your study was					0.012†
Theoretical	28(10.4)	23(88.5)	3 (1.1)	269(66.1)	
Practical	5(27.8)	13(72.2)	0(0.00)	18(4.4)	
Theoretical and practical	7(9.3)	66(88)	2(2.7)	75(18.4)	
None of them	9(20)	36(80)	0(0.00)	45(11.1)	
How can you describe your satisfaction with your nutrition education?					0.55

Satisfied	20(11.4)	154(87.5)	2(1.1)	176(43.2)	
Dissatisfied	15(10.9)	119(86.9)	3(2.2)	137(33.7)	
Unsure	14(14.9)	80(85.1)	0(0.00)	94(23.1)	
How can you describe your nutritional knowledge?					0.34
Good	17(11.2)	133(87.5)	2(1.3)	152(37.3)	
Fair	21(42.9)	176(88)	3(1.5)	200(49.1)	
Poor	11(20)	44(80)	0(0.00)	55(13.5)	
How would you rate the importance of having basic nutritional knowledge for nurses?					0.001†
Important	39(10.2)	337(88.5)	2(1.3)	381(93.6)	
Not important	4(36.4)	7(63.6)	0(0.00)	11(2.7)	
I do not know	6(40)	9(60)	0(0.00)	15(3.7)	
From where do you get your nutrition information for your patient?					0.81
Internet	10(10.9)	80(87)	2(2.2)	92(22.6)	
Dietitian	14(14.7)	80(84.2)	1(1.4)	95(23.3)	
Nutrition fact sheets	6(22.2)	21(77.8)	0(0.00)	27(6.6)	
Other nurses	4(13.3)	26(86.7)	0(0.00)	30 (7.4)	
Newspapers	0(0.00)	11(100)	0(0.00)	11 (2.7)	
Media	2(8)	23(92)	0(0.00)	25(6.1)	
Books	13(10.2)	112(88.2)	2(1.6)	127(31.2)	
How many times the hospital you work at did, provide you with nutritional training courses?					
Never	42(11.7)	312(86.9)	5(1.4)	359(88.2)	
Once	5(14.3)	30(85.7)	0(0.00)	35(8.6)	
Twice	2(15.4)	11(84.6)	0(0.00)	13(3.2)	

*: Chi square test †: significant at level of significance $\alpha < 0.05$

4.4 Nutritional practice for nurses.

For the purpose of this analysis the responses to the items under yes and sometimes were grouped together. Result concerning nurses nutritional practices are shown in table (4.8). 63.6% of the participants reported giving nutritional advices to their patients, while only 18.4% of the participants did not allow their patents to eat food from outside of the hospital. 46.9% of participants asked some of their patients what they liked to eat, furthermore 15.25% of the participants did not discuss their patients' nutritional issues with their families, and 63.6% reported that they discussed diet options with the patients if they see their patient eat food other than the hospital's food. 52.3% of participants discussed with the patients' diet options if they notice their patients did not eat the recommended quantity and quality of food, and 49.4% thought that, they should do assessment closely with the dietician and doctor to improve nutritional care of patients.

Table (4.8): Percentages and frequencies for nurses' nutritional practices

Nutritional practices	Answer	Frequency*	Percent
Do you actually give nutritional advices to patients?	Yes	259	63.6
	No	38	9.3
	Sometimes	110	27
Are you actually interested to give nutritional advices to patients?	Yes	352	86.5
	No	55	13.5
Is it part of your job, as a nurse, to give nutritional education to patients?	Yes	345	84.8
	No	62	15.2
Do you usually try to choose healthy food for your patients?	Yes, for all patients	210	51.6
	Yes, for some patients	165	40.5
	No, for all patients	32	7.9
Do you allow your patients to eat food brought from outside the hospital?	Yes, for all patients	83	20.4
	Yes, for some patients	249	61.2
	No, for all patients	75	18.4
Do you ask your patients what do they like to eat?	Yes, for all patients	56	13.8
	Yes, for some patients	191	46.9
	No, for all patients	160	39.3
Do you evaluate the food eaten by your patients?	Yes, for all patients	113	27.8
	Yes, for some patients	218	53.6
	No, for all patients	76	18.6
Do you discuss your patient's nutritional issue with his or her family?	Yes, for all patients	94	23.1
	Yes, for some patients	251	61.7
	No, for all patients	62	15.2
Do you think you have time to provide diet therapy to patients in need of special care?	Sometimes	301	74
	Busy for that	48	11.8
	Always have time	58	14.3
If you see your patient eat food other than the hospital's food you will	Inform the dietetics\ nutritionist	38	9.3
	Inform the doctor	35	8.6
	Discuss with the patients diet options	259	63.6
	You do nothing	75	18.4
If you notice that your patients did not eat the recommended quantity and quality of food you will	Inform the dietetics\ nutritionist	70	17.2
	Inform the doctor	88	21.6
	Discuss with the patients diet options	213	52.3
	You do nothing	36	8.8
What you will do if you notice your patients eat unhealthy food?	Inform the dietetics\ nutritionist	67	16.5
	Inform the doctor	64	15.7
	Discuss with the patients diet options	250	61.4
	You do nothing	26	6.4
In your opinion, how can we improve nutritional care of patients?	By feeding patients well	26	6.4
	By doing assessment closely with the dietician and doctor.	201	49.4
	By referring the patients to the doctor.	16	3.9
	By giving nurses more training on patients nutrition	164	40.3

4.4.1 Level of nurses' nutritional practice according to study variables.

The relationship between study variables and whether participants give nutritional advice to patients is shown in table (4.9). Results showed significant differences according gender (P=0.005), female nurses give nutritional advices to their patients more than males nurses; the presence of nutritional education within the participant's nursing education (P=0.046), participants whose nursing education had nutritional courses give nutritional more than participants whose nursing education did not have nutritional courses; the participant's perceived level of nutritional knowledge (P0.0001), participants who thought they had good and fair level of nutritional knowledge give nutritional advices to their patients more than participants who thought they had poor level of nutritional knowledge; and the extent to which the participants considered basic nutritional knowledge to be important for nurses (P=0.0001), participants who thought it is important for nurses to have basic nutritional knowledge give nutritional advices to their patients more than participants who thought it is not important for nurses to have basic nutritional knowledge.

Table (4.9): Relationship between study variables and whether participants give nutritional advice to patients.

Do you actually give nutritional advice to the patients?	Demographic factors	Answer		P- value*
	Hospital	Yes N (%)	No N (%)	0.47
	Al-Makased Islamic charitable hospital	223(90.3)	24(9.7)	
	Red crescent society hospital	25(96.2)	1(3.8)	
	Augusta victoria hospital	65(94.2)	4(5.8)	
	Saint John eyes hospital	25(86.2)	4(13.8)	
	Saint joseph hospital	31(86.1)	5(13.9)	
	Unit			0.54
	Intensive care unit	115(92.7)	9(7.3)	
	Open ward	140(91.5)	13(8.5)	
	Emergency ward	13(81.2)	3(18.8)	
	Outpatient clinic	18(90)	2(10)	
	Other**	83(88.3)	11(11.7)	
	Gender			0.005†
	Male	164(86.3)	26(13.7)	
	Female	205(94.5)	12(5.5)	
	Educational level			0.15
	Diploma	76(88.4)	10(11.6)	
	Bachelor degree	216(89.6)	25(10.4)	
	Master\ high diploma	77(96.3)	3(3.8)	
	Place of residency			
	City	181(91.4)	17(8.4)	0.17
	Village	164(88.6)	21(11.4)	
	Camp	24(100)	0(0.00)	
	Experience			0.91
	5 years or less	153(91.1)	15(8.9)	

	6 years -10 years	62(92.5)	5(7.5)	
	11 years- 15 years	48(88.9)	6(11.1)	
	16 years- 20 years	49(90.7)	5(9.3)	
	more than 21 years	57(89.1)	7(10.9)	
	Age			0.4
	20-24 years old	79(90.8)	8(9.2)	
	25-29 years old	99(90)	11(10)	
	30-34 years old	50(96.2)	2(3.8)	
	35-39 years old	30(85.7)	5(14.3)	
	40-44 years old	52(94.5)	3(5.5)	
	45 years or more	59(86.8)	9(13.2)	
Educational and professional characteristics				
	Did your study curriculum have nutrition courses?			
	Yes	350(91.4)	33(8.6)	0.046†
	No	19(79.2)	5(20.8)	
	How many nutrition courses have you taken during your study?			0.2
	One	286(90.2)	31(9.8)	
	Two	59(96.7)	2(3.3)	
	Three	5(100)	0(0.00)	
	Do you think your training in the nutrition courses during your study was?			0.89
	Theoretical	244(90.7)	25(9.3)	
	Practical	15(83.3)	3(16.7)	
	Theoretical and practical	70(93.3)	5(6.7)	
	None of them	40(88.9)	5(11.1)	
	How can you describe your satisfaction with your nutrition education?			0.085
	Satisfied	166(94.3)	10(5.7)	
	Dissatisfied	120(87.6)	17(12.4)	
	Unsure	83(88.3)	11(11.7)	
	How can you describe your nutritional knowledge?			0.0001†
	Good	143(94.1)	9(5.9)	
	Fair	186(93)	14(7)	
	Poor	40(72.7)	15(27.3)	
	How would you rate the importance of having basic nutritional knowledge?			0.0001†
	Important	351(92.1)	30(7.9)	
	Not important	7(63.6)	4(36.4)	
	I don't know	11(73.3)	4(26.7)	
	From where do get nutrition your nutrition information for your patients?			0.78
	Internet	83(90.2)	9(9.8)	
Dietitian	85(89.5)	10(10.5)		
Nutrition Fact Sheets	23(85.2)	4(14.8)		
Other Nurses	28(93.3)	2(6.7)		
Newspapers	9(81.8)	2(18.2)		
Media (Radio, TV)	23(92)	2(8)		
Books	118(92.9)	9(7.1)		
How many times the hospital you work at did provide you with nutritional training courses?			0.45	

	Never	325(90.5)	34 (9.5)
	Once	31(88.6)	4(11.4)
	Twice	13(100)	0(0.00)

*: Chi square test †: significant at level of significance $\alpha < 0.05$

** : Operation room, Labor room, Normal nursery care.

The relationship between study variables and whether participants are interested to give nutritional advice to patients is shown in table (4.10). Results showed a significant relationship concerning educational level ($P=0.017$), participants who had higher educational level were more interested to give nutritional advices to their patients; the presence of nutritional courses within the participant's nursing education ($P=0.02$), participants whose nursing education had nutritional courses were more interested to give nutritional advices to their patients more than participants whose nursing education did not have nutritional courses; the participant's perception of their own level of nutritional knowledge ($P=0.001$), participants who thought they had good level of nutritional knowledge were more interested to give nutritional advices to their patients more than participants who thought they had poor level of nutritional knowledge; the extent to which they rate the importance of nutritional knowledge for nurses ($P=0.001$), participants who thought it is important for nurses to had basic nutritional knowledge for nurses were more interested to give nutritional advices to their patients more than participants who thought it is not important for nurses to have basic nutritional knowledge; and the source of nutritional information used by participants when giving nutritional advice to patients ($P=0.001$), participants who used nutrition fact sheet were more interested to give nutritional advices to their patients more than participants who used another sources.

Table (4.10): The relationship between study variables and whether participants are interested to give nutritional advice to patients

Are you actually interested to give nutritional advices to patients?	Demographic factors	Answer		P- value*
	Hospital	Yes N (%)	No N (%)	
	Al-Makased Islamic charitable hospital	209(84.6)	38(15.4)	0.53
	Red crescent society hospital	28(88.5)	3(11.5)	
	Augusta victoria hospital	64(92.8)	5(7.2)	
	Saint John eyes hospital	25(86.2)	4(13.8)	
	Saint joseph hospital	31(86.1)	5(13.9)	
	Unit			
Intensive care unit	109(87.9)	15(12.1)		
Open word	133(86.9)	20(13.1)		
Emergency word	11(68.7)	5(31.3)		
Outpatient clinic	15(75)	5(25)		

	Other**	84(89.4)	10(10.6)	
	Gender			0.12
	Male	159(83.7)	31(16.3)	
	Female	193(88.9)	24(11.1)	
	Educational level			0.017†
	Diploma	67(77.9)	19(22.1)	
	Bachelor degree	211(87.6)	30(12.4)	
	Master\ high diploma	74(92.5)	6(7.5)	
	Place of residency			0.73
	City	160(85.9)	28(14.1)	
	Village	106(86.5)	25(13.5)	
	Camp	22(91.7)	2(8.3)	
	Experience			0.88
	5 years or less	145(86.3)	23(13.7)	
	6 years -10 years	59(88.1)	8(11.9)	
	11 years- 15 years	47(87)	7(13)	
	16 years- 20 years	48(89.9)	6(11.1)	
	more than 21 years	53(82.8)	11(17.2)	
	Age			0.4
	20-24 years old	71(81.6)	16(18.4)	
	25-29 years old	99(90)	11(10)	
	30-34 years old	45(86.5)	7(13.5)	
	35-39 years old	31(88.6)	4(11.4)	
	40-44 years old	50(90.9)	5(9.1)	
	45 years or more	56(82.4)	12(17.6)	
Educational and professional characteristics	Did your study curriculum have nutrition courses?			0.02†
	Yes	335(87.5)	48(12.5)	
	No	17(70.8)	7(29.2)	
	How many nutrition courses have you taken during your study?			0.7
	One	276(87.1)	41(12.9)	
	Two	55(90.2)	6(9.8)	
	Three	4(80%)	1(20)	
	Do you think your training in the nutrition courses during your study was?			0.29
	Theoretical	235(87.4)	34(12.6)	
	Practical	15(83.3)	3(16.7)	
	Theoretical and practical	67(89.3)	8(10.7)	
	None of them	35(77.8)	10(22.2)	
	How can you describe your satisfaction with your nutrition education?			0.3
	Satisfied	161(91.5)	15(8.5)	
	Dissatisfied	119(83.9)	22(16.1)	
	Unsure	76(80.9)	18(19.1)	
	How can you describe your nutritional knowledge?			0.001†
	Good	140(92.1)	12(7.9)	
	Fair	172(86)	28(14)	
	Poor	40(72.7)	15(27.3)	
How would you rate the importance of having basic nutritional knowledge?			0.001†	
Important	336(88.2)	45(11.8)		
Not important	7(63.6)	4(36.4)		
I don't know	9(60)	6(40)		

	From where do get nutrition your nutrition information for your patients?	78(84.8)	14(15.2)	0.001†
	Internet	14(15.2)	78(84.4)	
	Dietitian	84(88.4)	11(11.6)	
	Nutrition Fact Sheets	26(92.6)	2(7.4)	
	Other Nurses	24(80)	6(20)	
	Newspapers	5(45.5)	6(54.5)	
	Media (Radio, TV)	20(80)	5(20)	
	Books	116(91.3)	11(8.7)	
	How many times the hospital you work at did provide you with nutritional training courses?			0.3
	Never	308(85.8)	51(14.2)	
	Once	31(88.6)	4(11.4)	
	Twice	13(100)	0(0.00)	

*: Chi square test †: significant at level of significance $\alpha < 0.05$

** : Operation room, Labor room, Normal nursery care.

The relationship between study variables and whether participants believe that giving nutritional advice to patients is part of a nurse's job is shown in table (4.11). Results showed a significant relationship concerning the following variables: gender ($P=0.026$), as female considered giving nutritional advices to patients is part of their nursing job more than male participants; the presence of nutritional courses in the participant's nursing education ($P=0.05$), participants whose nursing education had nutritional courses considered giving nutritional advices to patients part of their job more than participants whose nursing education did not have nutritional courses; the participant's perceived level of nutritional knowledge ($P=0.04$), participants who thought they have good level of nutritional knowledge thought it is part of their job to give nutritional advices to their patients more than participants who thought they had poor level of nutritional knowledge; and the source used by the participant for giving nutritional information to patients ($P=0.002$), participants who use book or nutrition fact sheet thought it is part of their job to give nutritional advices for their patients more than participants who use another sources.

Table (4.11): The relationship between study variables and whether participants believe that giving nutritional advice to patients is part of a nurse's job

	Demographic factors	Answer		P- value*
	Hospital	Yes N (%)	No N (%)	
Is it part of your job, as a nurse, to give nutritional education to patients?	Al-Makased Islamic charitable hospital	208(84.2)	39(15.8)	0.4
	Red crescent society hospital	29(76.9)	6(23.1)	
	Augusta victoria hospital	61(88.4)	8(11.6)	
	Saint John eyes hospital	23(79.3)	6(20.7)	
	Saint joseph hospital	33(91.7)	3(8.3)	
	Unit			

	Intensive care unit	105(84.7)	19(15.3)	
	Open word	133(86.9)	20(13.1)	
	Emergency word	13(81.2)	3(18.8)	
	Outpatient clinic	19(95)	1(5)	
	Other **	75(79.8)	19(20.2)	
	Gender			0.026†
	Male	153(80.5)	37(19.5)	
	Female	192(88.5)	25(11.5)	
	Educational level			0.25
	Diploma	68(79.1)	18(20.9)	
	Bachelor degree	208(86.3)	33(13.7)	
	Master\ high diploma	69(86.2)	11(13.8)	
	Place of residency			0.9
	City	167(84.3)	31(15.7)	
	Village	157(84.9)	28(15.1)	
	Camp	21(87.5)	3(12.5)	
	Experience			0.28
	5 years or less	145(86.3)	23(13.7)	
	6 years -10 years	61(91)	6(9)	
	11 years- 15 years	45(83.3)	9(16.7)	
	16 years- 20 years	42(77.8)	12(22.2)	
	more than 21 years	52(81.3)	12(18.8)	
	Age			0.51
	20-24 years old	74(85.1)	13(14.9)	
	25-29 years old	96(87.3)	14(12.7)	
	30-34 years old	47(90.4)	5(9.6)	
	35-39 years old	30(85.7)	5(14.3)	
	40-44 years old	44(80)	11(20)	
	45 years or more	54(79.4)	14(20.6)	
Educational and professional characteristics	Did your study curriculum have nutrition courses?			0.05†
	Yes	328(85.6)	55(14.4)	
	No	17(70.8)	7(29.2)	
	How many nutrition courses have you taken during your study?			0.6
	One	274(86.4)	43(13.6)	
	Two	50(82)	11(18)	
	Three	4(80)	1(20)	
	Do you think your training in the nutrition courses during your study was?			0.3
	Theoretical	227(84.4)	42(15.6)	
	Practical	14(78.8)	4(22.2)	
	Theoretical and practical	68(90.7)	7(9.3)	
	None of them	36(80)	9(20)	
	How can you describe your satisfaction with your nutrition education?			0.26
	Satisfied	155(88.1)	21(11.9)	
	Dissatisfied	112(81.8)	25(18.2)	
	Unsure	78(83)	16(17)	
	How can you describe your nutritional knowledge?			0.04†
	Good	135(88.8)	17(11.2)	
	Fair	169(84.5)	31(15.5)	
	Poor	41(74.5)	14(25.5)	
How would you rate the importance of having basic nutritional			0.06	

	knowledge?			
	Important	327(85.8)	54(14.25)	
	Not important	7(63.6)	4(36.4)	
	I don't know	11(73.3)	4(26.7)	
	From where do get nutrition your nutrition information for your patients?			0.002†
	Internet	82(89.1)	10(10.9)	
	Dietitian	82(86.3)	13(13.7)	
	Nutrition Fact Sheets	22(81.5)	5(18.5)	
	Other Nurses	20(66.7)	10(33.3)	
	Newspapers	9(81.8)	2(18.2)	
	Media (Radio, TV)	16(64)	9(36)	
	Books	114(89.8)	13(10.2)	
	How many times the hospital you work at did provide you with nutritional training courses?			0.29
	Never	302(84.1)	57(15.9)	
	Once	37(85.7)	5(14.3)	
	Twice	13(100)	0(0.00)	

*: Chi square test †: significant at level of significance $\alpha < 0.05$

**: Operation room, Labor room, Normal nursery care.

The relationship between study variables and whether participants try to select healthy food for their patients is shown in table (4.12). Results show a significant relationship concerning age ($P=0.009$), participants whose age is 25-29 years old tried to select healthy food for their patients more than nurses from another age groups; participant's level of satisfaction with their own nutritional education ($P=0.0$), participants who were satisfied with their nutritional education tried to select healthy food for their patients more than participants who were not satisfied with their nutritional education; participant's perceived level of nutritional knowledge ($P=0.004$), participants who thought they had good level of nutritional knowledge tried to select healthy food for their patients more than participants who thought they had poor level of nutritional knowledge; and whether the participant believes basic nutritional knowledge is important for nurses ($P=0.009$), participants who thought it is important for nurses to have basic nutritional knowledge tried to select healthy food for their patients more than participants who thought it is not important for nurses to have basic nutritional knowledge.

Table (4.12): The relationship between study variables and whether participants try to select healthy food for their patients.

Do you actually try to choose healthy food for your patients?	Demographic factors	Answer		P- value*
		Yes N (%)	No N (%)	
Hospital	Al-Makased Islamic charitable hospital	228(92.3)	19(7.7)	0.85
	Red crescent society hospital	25(96.2)	1(3.8)	
	Augusta victoria hospital	64(92.8)	5(7.2)	
	Saint John eyes hospital	26(89.7)	3(10.3)	
	Saint joseph hospital	32(88.9)	4(11.1)	
	Unit			
Intensive care unit	121(97.6)	3(2.4)		
Open word	138(90.2)	15(9.8)		
Emergency word	15(93.7)	1(6.3)		
Outpatient clinic	19(95)	1(5)		
Other**	82(87.2)	12(12.8)	0.06	
Gender				
Male	170(89.5)	20(10.5)		
Female	205(94.5)	12(5.5)	0.93	
Educational level				
Diploma	79(91.9)	7(8.1)		
Bachelor degree	223(92.5)	18(7.5)	0.4	
Master\ high diploma	73(91.2)	7(8.8)		
Place of residency				
City	185(93.4)	13(6.6)	0.63	
Village	167(90.3)	18(9.7)		
Camp	23(95.8)	1(4.2)		
Experience			0.009†	
5 years or less	162(96.4)	6(3.6)		
6 years -10 years	62(92.5)	5(7.5)		
11 years- 15 years	47(87)	7(13)		
16 years- 20 years	48(88.9)	6(11.1)		
more than 21 years	56(87.5)	8(12.5)		
Age			0.09	
20-24 years old	84(96.6)	3(3.4)		
25-29 years old	107(97.3)	3(2.7)		
30-34 years old	47(90.4)	5(9.6)		
35-39 years old	29(82.9)	6(17.1)		
40-44 years old	50(90.9)	5(9.1)		
45 years or more	58(85.3)	10(14.7)	0.8	
Did your study curriculum have nutrition courses?				
Yes	355(92.7)	28(7.3)		
No	20(83.3)	4(16.7)	0.21	
How many nutrition courses have you taken during your study?				
One	294(92.7)	23(7.3)		
Two	56(91.8)	5(8.2)		
Three	5(100)	0(0.00)	0.01†	
Do you think your training in the nutrition courses during your study was?				
Theoretical	249(92.6)	20(7.4)		
Practical	17(94.4)	1(5.6)		
Theoretical and practical	71(94.7)	4(5.3)		
None of them	38(84.4)	7(15.6)		
How can you describe your satisfaction with your nutrition				

	education?			
	Satisfied	170(96.6)	6(3.4)	
	Dissatisfied	120(87.6)	17(12.4)	
	Unsure	85(90.4)	9(9.6)	
	How can you describe your nutritional knowledge?			0.004†
	Good	146(96.1)	6(3.9)	
	Fair	184(92)	16(8)	
	Poor	45(81.8)	10(18.2)	
	How would you rate the importance of having basic nutritional knowledge?			0.009†
	Important	355(93.2)	26(6.8)	
	Not important	8(72.7)	3(27.3)	
	I don't know	12(80)	3(20)	
	From where do get nutrition your nutrition information for your patients?			0.33
	Internet	85(92.4)	7(7.6)	
	Dietitian	87(91.6)	8(8.4)	
	Nutrition Fact Sheets	26(96.3)	1(3.7)	
	Other Nurses	27(90)	3(10)	
	Newspapers	10(90.9)	1(9.1)	
	Media (Radio, TV)	20(80)	5(20)	
	Books	120(94.5)	7(5.5)	
	How many times the hospital you work at did provide you with nutritional training courses?			0.27
	Never	328(91.4)	31(8.6)	
	Once	34(97.1)	1(2.9)	
	Twice	13(100)	0(0.00)	

*: Chi square test †: significant at level of significance $\alpha < 0.05$

** : Operation room, Labor room, Normal nursery care.

The relationship between study variables and whether participants allow their patients to eat food brought from outside the hospital is shown in table (4.13). Results showed significant relationship according to unit in which participants work ($P=0.045$), participants who work in out patients clinic allowed for their patients to eat food from outside the hospital more than participants who work in other hospital units.

Table (4.13): The relationship between study variables and whether participants allow their patients to eat food brought from outside the hospital.

	Demographic factors	Answer		P- value*
		Yes N (%)	No N (%)	
Do you allow your patients to eat food brought from outside the hospital?	Hospital			0.98
	Al-Makased Islamic charitable hospital	154(62.3)	93(37.7)	
	Red crescent society hospital	15(57.7)	11(42.3)	
	Augusta victoria hospital	42(60.9)	27(39.1)	
	Saint John eyes hospital	17(58.6)	12(41.4)	
	Saint joseph hospital	21(58.3)	15(41.7)	
	Unit			0.045†
	Intensive care unit	38(30.6)	86(69.4)	
	Open ward	57(37.3)	96(62.7)	
	Emergency ward	9(56.3)	7(43.8)	
	Outpatient clinic	12(60)	8(40)	
	Other**	46(48.9)	48(51.1)	
	Gender			0.6
	Male	119(62.6)	71(37.4)	
	Female	130(59.9)	87(40.1)	
	Educational level			0.24
	Diploma	46(53.5)	40(46.5)	
	Bachelor degree	151(62.7)	90(37.3)	
	Master\ high diploma	52(65)	28(35)	
	Place of residency			0.45
	City	115(58.1)	83(41.9)	
	Village	119(64.3)	66(35.7)	
	Camp	15(62.5)	9(37.5)	
	Experience			0.8
	5 years or less	105(62.5)	63(37.5)	
	6 years -10 years	37(55.2)	30(44.8)	
	11 years- 15 years	35(64.8)	19(35.2)	
16 years- 20 years	33(61.1)	21(38.9)		
more than 21 years	39(60.9)	25(39.1)		
Age			0.4	
20-24 years old	51(58.6)	36(41.4)		
25-29 years old	68(61.8)	42(38.2)		
30-34 years old	38(73.1)	14(26.9)		
35-39 years old	18(51.4)	17(48.6)		
40-44 years old	35(63.6)	20(36.4)		
45 years or more	39(57.4)	29(42.6)		
Educational and professional characteristics	Did your study curriculum have nutrition courses?			0.9
	Yes	234(61.1)	149(38.9)	
	No	15(62.5)	9(37.5)	
	How many nutrition courses have you taken during your study?			0.1
	One	199(62.8)	118(37.2)	
	Two	31(50.8)	30(49.2)	
	Three	4(80)	1(20)	
	Do you think your training in the nutrition courses during your study was?			0.4
	Theoretical	164(61)	105(39)	
	Practical	8(44.4)	10(55.6)	
	Theoretical and practical	50(66.7)	25(33.3)	
	None of them	27(60)	18(40)	

How can you describe your satisfaction with your nutrition education?			0.1
Satisfied	101(57.4)	75(42.6)	
Dissatisfied	82(59.9)	55(40.1)	
Unsure	66(70.2)	28(29.8)	
How can you describe your nutritional knowledge?			0.06
Good	84(55.3)	68(44.7)	
Fair	134(67)	66(33)	
Poor	31(56.4)	24(43.6)	
How would you rate the importance of having basic nutritional knowledge?			0.9
Important	234(61.4)	147(38.6)	
Not important	6(54.5)	5(45.5)	
I don't know	9(60)	6(40)	
From where do get nutrition your nutrition information for your patients?			0.1
Internet	50(54.3)	42(45.7)	
Dietitian	58(61.1)	37(38.9)	
Nutrition Fact Sheets	17(63)	10(37)	
Other Nurses	25(83.3)	5(16.7)	
Newspapers	8(72.7)	3(27.3)	
Media (Radio, TV)	13(52)	12(48)	
Books	78(61.4)	49(38.6)	
How many times the hospital you work at did provide you with nutritional training courses?			0.9
Never	219(61)	140(39)	
Once	22(62.9)	13(37.1)	
Twice	8(61.5)	5(38.5)	

*: Chi square test †: significant at level of significance $\alpha < 0.05$

** : Operation room, Labor room, Normal nursery care.

The relationship between study variables and the action taken by participants when they observe patients consuming non-hospital food is shown in table (4.14). Results showed a significant relationship concerning the following study variables: hospital in which participant works ($P=0.01$), participants who work in Saint Joseph hospital take action if they observe their patients consuming non-hospital food more than participants from other hospitals; participant's level of satisfaction with their nutritional education ($P=0.04$), participants who were satisfied with their nutritional education took action more than participants who were not satisfied with their nutritional education; participant's perceived level of nutritional knowledge ($P=0.004$), participants who thought they had good level of nutritional knowledge took action more than participants who thought they had poor level of nutritional knowledge if they notice their patients consuming non-hospital food; and the

source used by participants for giving nutritional information to patients (P=0.02), participants who used newspapers to get their nutritional information for their patients took action more than participants who used another resources.

Table (4.14): The relationship between study variables and the action taken by participants when they observe patients consuming non-hospital food

	Demographic factors	Answer		P-value*
		Take action N (%)	No action taken N (%)	
If you see your patients eat food other than the hospital's food, you will	Hospital			0.01†
	Al-Makased Islamic charitable hospital	202(81.8)	45(18.2)	
	Red crescent society hospital	23(88.5)	3(11.5)	
	Augusta victoria hospital	58(84.15)	11(15.9)	
	Saint John eyes hospital	17(58.6)	12(41.4)	
	Saint joseph hospital	32(88.9)	4(11.1)	
	Unit			0.06
	Intensive care unit	119(89.5)	13(10.5)	
	Open ward	119(77.8)	34(22.2)	
	Emergency ward	11(68.7)	5(31.3)	
	Outpatient clinic	17(85)	3(15)	
	Other**	74(78.7)	20(21.3)	
	Gender			0.6
	Male	157(82.6)	33(17.4)	
	Female	175(80.6)	42(19.4)	
	Educational level			0.6
	Diploma	67(77.9)	19(22.1)	
	Bachelor degree	200(83)	41(17)	
	Master\ high diploma	65(81.2)	15(18.8)	
	Place of residency			0.6
	City	163(82.35)	35(17.7)	
	Village	148(80)	37(20)	
	Camp	21(87.5)	3(12.5)	
	Experience			0.4
	5 years or less	140(83.3)	28(16.7)	
	6 years -10 years	50(74.6)	17(25.4)	
	11 years- 15 years	44(81.5)	10(18.5)	
	16 years- 20 years	47(87)	17(13)	
	more than 21 years	51(79.7)	13(20.3)	
	Age			0.8
20-24 years old	70(80.5)	17(19.5)		
25-29 years old	93(84.5)	17(15.5)		
30-34 years old	39(75)	13(25)		
35-39 years old	29(82.9)	6(17.1)		
40-44 years old	46(83.6)	9(16.4)		
45 years or more	55(80.9)	13(19.1)		
Did your study curriculum have nutrition courses?			0.7	
Yes	313(81.7)	70(18.3)		
No	19(79.2)	5(20.8)		
How many nutrition courses have you taken during your study?			0.9	
One	258(81.4)	59(18.6)		
Two	51(83.6)	10(16.4)		
Three	4(80)	1(20)		

Do you think your training in the nutrition courses during your study was?			0.3
Theoretical	219(81.4)	50(18.6)	
Practical	15(83.3)	3(16.7)	
Theoretical and practical	65(86.7)	10(13.3)	
None of them	33(73.3)	12(26.7)	
How can you describe your satisfaction with your nutrition education?			0.04†
Satisfied	151(85.8)	75(14.2)	
Dissatisfied	112(81.8)	25(18.2)	
Unsure	69(73.4)	25(26.6)	
How can you describe your nutritional knowledge?			0.004†
Good	133(87.5)	19(12.5)	
Fair	162(81)	38(19)	
Poor	37(67.3)	18(32.7)	
How would you rate the importance of having basic nutritional knowledge?			0.52
Important	311(81.6)	70(18.4)	
Not important	10(90.9)	1(9.1)	
I don't know	11(73.3)	4(26.7)	
From where do get nutrition your nutrition information for your patients?			0.02†
Internet	71(77.2)	21(22.8)	
Dietitian	80(84.2)	15(15.8)	
Nutrition Fact Sheets	23(85.2)	4(14.8)	
Other Nurses	24(80)	6(20)	
Newspapers	10(90.9)	1(9.1)	
Media (Radio, TV)	14(56)	11(44)	
Books	110(86.6)	17(13.4)	
How many times the hospital you work at did provide you with nutritional training courses?			0.7
Never	287(79.9)	72(20.1)	
Once	33(94.3)	2(5.7)	
Twice	12(92.3)	1(7.7)	

*: Chi square test †: significant at level of significance $\alpha < 0.05$

** : Operation room, Labor room, Normal nursery care.

The relationship between study variables and whether participants ask patients about their food preferences is showed in table (4.15). Results showed that there is a significant relationship concerning the following two study variables: participant's perceived level of nutritional knowledge (P=0.04), participants who thought they had fair level of nutritional knowledge asked their patients about their food preference more than participants who thought they had poor level of nutritional knowledge; and the number of nutritional training courses provided to participants by their hospital (P=0.04), the participants who

took twice nutritional training asked their patients about their food preference more than participants who never took nutritional training from the hospital in which they work.

Tale (4.15): Relationship between study variables and whether participants ask patients about their food preferences

	Demographic factors	Answer		P-value*
Do you ask your patients what they like to eat?	Hospital	Yes N (%)	No N (%)	0.6
	Al-Makased Islamic charitable hospital	158(64)	89(36)	
	Red crescent society hospital	15(57.7)	11(42.3)	
	Augusta victoria hospital	45(65.2)	24(34.8)	
	Saint John eyes hospital	12(41.4)	17(58.6)	
	Saint joseph hospital	17(47.2)	19(52.8)	
	Unit			0.1
	Intensive care unit	85(68.5)	39(31.5)	
	Open word	86(56.2)	67(43.8)	
	Emergency word	9(56.2)	7(43.8)	
	Outpatient clinic	15(75)	5(25)	
	Other**	52(55.3)	42(44.7)	
	Gender			0.9
	Male	115(60.5)	75(39.5)	
	Female	132(60.8)	85(39.2)	
	Educational level			0.9
	Diploma	53(61.6)	33(38.4)	
	Bachelor degree	144(59.8)	97(40.2)	
	Master\ high diploma	50(62.5)	30(37.5)	
	Place of residency			0.7
	City	124(62.6)	74(37.4)	
	Village	110(59.5)	75(40.5)	
	Camp	13(54.2)	11(45.8)	
	Experience			0.6
	5 years or less	99(58.9)	69(41.1)	
	6 years -10 years	42(62.7)	25(37.3)	
	11 years- 15 years	34(63)	20(37)	
16 years- 20 years	29(53.7)	25(46.3)		
more than 21 years	43(67.2)	21(32.8)		
Age			0.051	
20-24 years old	43(49.4)	44(50.6)		
25-29 years old	73(66.4)	37(33.6)		
30-34 years old	33(63.5)	19(36.5)		
35-39 years old	25(71.4)	10(28.6)		
40-44 years old	28(50.9)	27(49.1)		
45 years or more	45(66.2)	23(33.8)		
Educational and professional characteristics				0.8
	Did your study curriculum have nutrition courses?			
	Yes	233(60.8)	150(39.2)	
	No	14(58.3)	10(41.7)	
	How many nutrition courses have you taken during your study?			0.96
One	192(60.6)	125(39.4)		
Two	38(62.3)	23(37.7)		

	Three	3(60)	2(40)	
	Do you think your training in the nutrition courses during your study was?			0.44
	Theoretical	159(59.1)	110(40.9)	
	Practical	12(66.7)	6(33.3)	
	Theoretical and practical	51(68)	24(32)	
	None of them	25(55.6)	20(44.4)	
	How can you describe your satisfaction with your nutrition education?			0.06
	Satisfied	117(66.5)	59(33.5)	
	Dissatisfied	81(59.1)	56(40.9)	
	Unsure	49(52.1)	45(47.9)	
	How can you describe your nutritional knowledge?			0.04†
	Good	94(61.8)	58(38.2)	
	Fair	128(64)	72(36)	
	Poor	25(45.5)	30(54.5)	
	How would you rate the importance of having basic nutritional knowledge?			0.4
	Important	228(59.8)	153(40.2)	
	Not important	8(72.7)	3(27.3)	
	I don't know	11(73.3)	4(26.7)	
	From where do get nutrition your nutrition information for your patients?			0.96
	Internet	55(59.8)	37(40.2)	
	Dietitian	57(60)	38(40)	
	Nutrition Fact Sheets	16(59.3)	11(40.7)	
	Other Nurses	20(66.7)	10(33.3)	
	Newspapers	8(72.7)	3(27.3)	
	Media (Radio, TV)	14(56)	11(44)	
	Books	77(60.6)	50(39.4)	
	How many times the hospital you work at did provide you with nutritional training courses?			0.04†
	Never	210(58.5)	149(41.5)	
	Once	26(74.3)	9(25.7)	
	Twice	11(84.6)	2(15.4)	

*: Chi square test †: significant at level of significance $\alpha < 0.05$

** : Operation room, Labor room, Normal nursery care.

The relationship between study variables and whether participants evaluate the food consumed by patients is shown in table (4.16). Results showed that significant differences were seen only according to the unit in which participants work ($P=0.004$), participants who work in the intensive care unit evaluated the food consumed by patients more than the participants who work in another hospital units.

Table (4.16) Relationship between study variables and whether participants evaluate the food consumed by patients

	Demographic factors	Answer		P- value*
		Yes N (%)	No N (%)	
Do you evaluate the food eaten by your patients?	Hospital			0.2
	Al-Makased Islamic charitable hospital	203(82.2)	44(17.8)	
	Red crescent society hospital	20(76.9)	6(23.1)	
	Augusta victoria hospital	55(79.7)	14(20.3)	
	Saint John eyes hospital	20(69)	9(31)	
	Saint joseph hospital	33(91.7)	3(8.3)	
	Unit			0.004†
	Intensive care unit	111(89.5)	13(10.5)	
	Open ward	126(82.4)	27(17.6)	
	Emergency ward	14(75)	4(25)	
	Outpatient clinic	17(85)	3(15)	
	Other**	65(69.1)	29(30.9)	
	Gender			0.4
	Male	151(79.5)	39(20.5)	
	Female	180(82.9)	37(17.1)	
	Educational level			0.9
	Diploma	70(81.4)	16(18.6)	
	Bachelor degree	197(81.7)	44(18.3)	
	Master\ high diploma	64(80)	16(20)	
	Place of residency			0.3
	City	163(82.3)	35(17.7)	
	Village	146(78.9)	39(21.1)	
	Camp	22(91.7)	2(8.3)	
	Experience			0.5
	5 years or less	137(81.5)	31(18.5)	
	6 years -10 years	59(88.1)	8(11.9)	
	11 years- 15 years	41(75.9)	13(24.1)	
	16 years- 20 years	43(79.6)	11(20.4)	
	more than 21 years	51(79.7)	13(20.3)	
Age			0.6	
20-24 years old	69(79.3)	18(20.7)		
25-29 years old	94(85.5)	16(14.5)		
30-34 years old	44(84.5)	8(15.4)		
35-39 years old	28(80)	7(20)		
40-44 years old	41(74.5)	14(25.5)		
45 years or more	55(80.9)	13(19.1)		
Did your study curriculum have nutrition courses?			0.8	
Yes	311(81.2)	72(18.8)		
No	20(83.3)	4(16.7)		
How many nutrition courses have you taken during your study?			0.5	
One	258(81.4)	59(18.6)		
Two	48(78.7)	13(21.3)		
Three	5(100)	0(0.00)		
Do you think your training in the nutrition courses during your study was?			0.6	
Theoretical	217(80.7)	52(19.3)		
Practical	14(77.8)	4(22.2)		
Theoretical and practical	65(86.7)	10(13.3)		
None of them	35(77.8)	10(22.2)		
How can you describe your satisfaction with your nutrition			0.07	

	education?			
	Satisfied	152(86.4)	24(13.6)	
	Dissatisfied	105(76.6)	32(23.4)	
	Unsure	74(78.7)	20(21.3)	
	How can you describe your nutritional knowledge?			0.1
	Good	127(83.6)	25(16.4)	
	Fair	165(82.5)	35(17.5)	
	Poor	39(70.9)	16(29.1)	
	How would you rate the importance of having basic nutritional knowledge?			0.8
	Important	311(81.6)	70(18.4)	
	Not important	8(72.7)	3(27.3)	
	I don't know	12(80)	3(20)	
	From where do get nutrition your nutrition information for your patients?			0.9
	Internet	73(79.3)	19(20.7)	
	Dietitian	79(83.2)	16(16.8)	
	Nutrition Fact Sheets	21(77.8)	6(22.2)	
	Other Nurses	24(80)	6(20)	
	Newspapers	9(81.8)	2(18.2)	
	Media (Radio, TV)	19(76)	6(24)	
	Books	106(83.5)	21(16.5)	
	How many times the hospital you work at did provide you with nutritional training courses?			0.3
	Never	288(80.2)	71(19.8)	
	Once	31(88.6)	4(11.4)	
	Twice	12(92.3)	1(7.7)	

*: Chi square test †: significant at level of significance $\alpha < 0.05$

**: Operation room, Labor room, Normal nursery care.

The relationship between study variables and whether action was taken by participants upon noticing their patients not eating the recommended quantity and quality of food is shown in table (4.17). Results showed that there is a significant relationship concerning the following study variables: hospital in which participant works ($P=0.0001$), participants who work in Saint Joseph hospital took action more than participants who work on other hospital upon noticing their patients not eating the recommended quantity and quality of food; whether the participant's nursing education included nutritional courses ($P=0.004$), participants whose nursing education had nutritional courses took action more than participants whose nursing education did not have nutritional courses upon noticing their patients not eating the recommended quantity and quality of food; method of training the participant received during their nutritional courses as part of their nursing education ($P=0.01$), as participants who studied nutrition theoretically and practically took action more than participants who trained in different method upon noticing their patients not

eating the recommended quantity and quality of food; participant's perceived level of nutritional knowledge (P=0.001), participants who thought they had far level of nutritional knowledge took action more than participants who thought they had poor level of nutritional knowledge upon noticing their patients not eating the recommended quantity and quality of food; and whether the participant rates having basic nutritional knowledge as being important for nurses (P=0.02), participants who thought it is important for nurses to had basic nutritional knowledge took action more than participants who thought it is not important for nurses to had basic nutritional knowledge upon noticing their patients not eating the recommended quantity and quality of food

Table (4.17): Relationship between study variables and whether action was taken by participants upon noticing their patients not eating the recommended quantity and quality of food

If you notice your patients did not eat the recommended quantity and quality of food you will?	Demographic factors	Answer		P- value*
		Action taken N (%)	No action taken N (%)	
	Hospital			0.0001†
	Al-Makased Islamic charitable hospital	227(91.9)	20(8.1)	
	Red crescent society hospital	25(96.2)	1(3.8)	
	Augusta victoria hospital	65(94.2)	4(5.8)	
	Saint John eyes hospital	19(65.5)	10(34.5)	
	Saint joseph hospital	35(97.2)	1(2.8)	
	Unit			0.08
	Intensive care unit	117(94.4)	7(5.6)	
	Open word	142(92.85)	11(7.2)	
	Emergency word	15(93.7)	1(6.3)	
	Outpatient clinic	16(80)	4(20)	
	Other**	81(86.2)	13(13.8)	
	Gender			0.8
	Male	174(91.6)	16(8.4)	
	Female	197(90.8)	20(9.2)	
	Educational level			0.2
	Diploma	76(88.4)	10(11.6)	
	Bachelor degree	218(90.5)	23(9.5)	
	Master\ high diploma	97(96.3)	3(3.8)	
	Place of residency			0.7
City	181(91.4)	17(8.6)		
Village	167(90.3)	18(9.7)		
Camp	23(95.8)	1(4.2)		
Experience			0.1	
5 years or less	160(95.2)	8(4.8)		
6 years -10 years	59(88.1)	8(11.9)		
11 years- 15 years	49(90.7)	5(9.3)		
16 years- 20 years	48(88.9)	6(11.1)		
more than 21 years	55(85.9)	9(14.1)		
Age			0.3	
20-24 years old	80(92)	7(8)		
25-29 years old	105(95.5)	5(4.5)		
30-34 years old	46(88.5)	6(11.5)		
35-39 years old	33(94.3)	2(5.7)		

	40-44 years old	48(87.3)	7(12.7)	
	45 years or more	59(86.8)	9(13.2)	
Educational and professional characteristics	Did your study curriculum have nutrition courses?			0.004†
	Yes	353(92.2)	30(7.8)	
	No	17(75)	6(25)	
	How many nutrition courses have you taken during your study?			0.3
	One	289(91.2)	28(8.8)	
	Two	59(96.7)	2(3.3)	
	Three	5(100)	0(0.00)	
	Do you think your training in the nutrition courses during your study was?			0.01†
	Theoretical	246(91.4)	23(8.6)	
	Practical	16(88.9)	2(11.1)	
	Theoretical and practical	73(97.3)	2(2.7)	
	None of them	36(80)	9(20)	
	How can you describe your satisfaction with your nutrition education?			0.3
	Satisfied	163(92.6)	13(7.4)	
	Dissatisfied	126(92)	11(8)	
	Unsure	82(87.2)	12(12.8)	
	How can you describe your nutritional knowledge?			0.001†
	Good	141(92.8)	11(7.2)	
	Fair	187(93.5)	13(6.5)	
	Poor	43(78.2)	12(21.8)	
	How would you rate the importance of having basic nutritional knowledge?			0.02†
	Important	351(92.1)	30(7.9)	
	Not important	9(81.8)	2(18.2)	
	I don't know	11(73.3)	4(26.7)	
	From where do get nutrition your nutrition information for your patients?			0.1
	Internet	82(89.1)	10(10.9)	
	Dietitian	93(97.9)	2(2.1)	
	Nutrition Fact Sheets	24(88.9)	3(11.1)	
Other Nurses	26(86.7)	4(13.3)		
Newspapers	9(81.8)	2(18.2)		
Media (Radio, TV)	21(84)	4(16)		
Books	116(91.3)	11(8.7)		
How many times the hospital you work at did provide you with nutritional training courses?			0.8	
Never	326(90.8)	33(9.2)		
Once	33(94.3)	2(5.7)		
Twice	12(92.3)	1(7.7)		

*: Chi square test †: significant at level of significance $\alpha < 0.05$

** : Operation room, Labor room, Normal nursery care.

The relationship between study variables and whether participants discuss nutrition with the patient or their family is shown in table (4.18). Results showed that there is a significant relationship concerning the following variables: the hospital in which participants work ($P=0.0001$), participants who work in Augusta Victoria hospital discussed their patients nutritional issues with their families more than participants who work in other hospitals; and the participant's perceived level of nutritional knowledge (0.003), participants who thought they had good level of nutritional knowledge discussed their patients nutritional issues with their families more than participants who thought they had poor level of nutritional knowledge.

Table (4.18): Relationship between study variables and whether participants discuss nutrition with the patient or their family.

Do you discuss your patients' nutritional issue with his or her family?	Demographic factors	Answer		P- value*
	Hospital	Yes N (%)	No N (%)	0.0001†
	Al-Makased Islamic charitable hospital	211(85.4)	36(14.6)	0.1
	Red crescent society hospital	20(76.9)	6(23.1)	
	Augusta victoria hospital	64(92.8)	5(7.2)	
	Saint John eyes hospital	17(58.6)	12(41.4)	
	Saint joseph hospital	33(91.7)	3(8.3)	
	Unit			
	Intensive care unit	111(89.5)	12(10.5)	
	Open word	132(86.3)	21(13.7)	
	Emergency word	12(75)	4(25)	
	Outpatient clinic	17(85)	3(15)	
	Other**	73(77.7)	21(22.3)	0.06
	Gender			
	Male	156(82.1)	34(17.9)	
	Female	189(87.1)	28(12.9)	0.09
	Educational level			
	Diploma	74(86)	12(14)	
	Bachelor degree	197(81.7)	44(18.3)	0.6
	Master\ high diploma	74(92.5)	6(7.5)	
	Place of residency			
	City	174(87.9)	24(12.1)	0.9
	Village	149(80.5)	36(19.5)	
	Camp	22(91.7)	2(8.3)	
	Experience			0.6
	5 years or less	147(87.5)	21(12.5)	
	6 years -10 years	55(82.1)	12(17.9)	
	11 years- 15 years	43(79.6)	11(20.4)	
	16 years- 20 years	45(83.4)	9(16.7)	
more than 21 years	55(85.9)	9(14.1)		
Age			0.9	
20-24 years old	76(87.4)	11(12.6)		
25-29 years old	92(83.6)	18(16.4)		
30-34 years old	45(86.5)	7(13.5)		
35-39 years old	28(80)	7(20)		

	40-44 years old	46(83.6)	9(16.4)	
	45 years or more	58(85.3)	10(14.7)	
	Did your study curriculum have nutrition courses?			0.8
	Yes	325(84.9)	58(15.1)	
	No	20(83.3)	4(16.7)	
	How many nutrition courses have you taken during your study?			0.6
	One	267(84.2)	50(15.8)	
	Two	53(86.9)	8(13.1)	
	Three	5(100)	0(0.00)	
	Do you think your training in the nutrition courses during your study was?			0.2
	Theoretical	222(82.5)	47(17.5)	
	Practical	18(100)	0(0.00)	
	Theoretical and practical	66(88)	9(12)	
	None of them	39(86.7)	6(13.3)	
	How can you describe your satisfaction with your nutrition education?			0.2
	Satisfied	156(88.6)	20(11.4)	
	Dissatisfied	112(81.8)	25(18.2)	
	Unsure	77(81.9)	17(18.1)	
	How can you describe your nutritional knowledge?			0.003†
	Good	137(91.1)	15(9.9)	
	Fair	169(84.5)	31(15.5)	
	Poor	39(70.9)	16(29.1)	
	How would you rate the importance of having basic nutritional knowledge?			0.1
	Important	326(85.6)	55(14.4)	
	Not important	7(63.6)	4(36.4)	
	I don't know	12(80)	3(20)	
	From where do get nutrition your nutrition information for your patients?			0.4
	Internet	81(88)	11(12)	
	Dietitian	84(88.4)	11(11.6)	
	Nutrition Fact Sheets	24(88.9)	3(11.1)	
	Other Nurses	25(83.3)	5(16.7)	
	Newspapers	9(81.8)	2(18.2)	
	Media (Radio, TV)	18(72)	7(28)	
	Books	104(81.9)	23(18.1)	
	How many times the hospital you work at did provide you with nutritional training courses?			0.1
	Never	300(83.6)	59(16.4)	
	Once	32(91.4)	3(8.6)	
	Twice	13(100)	0(0.00)	

*: Chi square test †: significant at level of significance $\alpha < 0.05$

** : Operation room, Labor room, Normal nursery care.

The relationship between study variables and whether participants take action upon noticing their patients eating unhealthy food is shown in table (4.19). Results showed that there is a significant relationship concerning the following variables: hospital in which participant works (P=0.007), participants who work in Red Crescent society hospital took action more than participants who work in another hospitals upon noticing their patients eating unhealthy food ; the participant's perceived level of nutritional knowledge (P=0.004), participants who thought they had good level of nutritional knowledge took action more than participants who thought they had poor level of nutritional knowledge upon noticing their patients eating unhealthy food; participant's rating of the importance of having basic nutritional knowledge for nurses (P=0.0001), participants who thought it is important for nurses to have basic nutritional knowledge took action more than participants who thought it is not important for nurses to have basic nutritional knowledge upon noticing their patients eating unhealthy food; and the source used by participants when giving nutritional information to patients (P=0.04), participant who took their nutritional information form dietitian took action more than participants who took their nutritional information from another sources upon noticing their patients eating unhealthy food.

Table (4.19): Relationship between study variables and whether participants take action upon noticing their patients eating unhealthy food

What you will do if you notice your patients eat unhealthy food?	Demographic factors	Answer		P- value*
	Hospital	Action taken N (%)	No action taken N (%)	
What you will do if you notice your patients eat unhealthy food?	Al-Makased Islamic charitable hospital	230(93.1)	17(6.9)	0.007†
	Red crescent society hospital	26(100)	0(0.00)	
	Augusta victoria hospital	67(97.1)	2(2.9)	
	Saint John eyes hospital	23(79.3)	6(20.7)	
	Saint joseph hospital	35(97.2)	1(2.8)	
	Unit			
Intensive care unit	118(95.2)	6(4.8)		
Open word	146(95.4)	7(4.6)		
Emergency word	15(93.7)	1(6.3)		
Outpatient clinic	19(95)	1(5%)		
Other	83(88.3)	11(11.7)		
Gender				0.6
Male	179(94.2)	11(5.8)		
Female	20(93.1)	15(6.9)		
Educational level				0.7
Diploma	79(91.9)	7(8.1)		
Bachelor degree	227(94.2)	14(5.8)		
Master\ high diploma	75(93.7)	5(6.3)		
Place of residency				0.3
City	186(93.9)	12(6.1)		
Village	171(92.4)	14(7.6)		

	Camp	24(100)	4(0.00)	
	Experience			0.4
	5 years or less	161(95.8)	7(4.2)	
	6 years -10 years	63(94)	4(6)	
	11 years- 15 years	49(90.7)	5(9.3)	
	16 years- 20 years	51(94.4)	3(5.6)	
	more than 21 years	57(89.1)	7(10.9)	
	Age			0.4
	20-24 years old	83(95.4)	4(4.6)	
	25-29 years old	104(94.5)	6(5.5)	
	30-34 years old	50(96.2)	2(3.8)	
	35-39 years old	32(91.4)	3(8.6)	
	40-44 years old	52(94.5)	3(5.5)	
	45 years or more	60(88.2)	8(11.8)	
Educational and professional characteristics				
	Did your study curriculum have nutrition courses?			0.2
	Yes	360(94)	23(6)	
	No	21(87.5)	3(12.5)	
	How many nutrition courses have you taken during your study?			0.6
	One	299(94.3)	18(5.7)	
	Two	56(91.8)	7(8.2)	
	Three	5(100)	0(0.00)	
	Do you think your training in the nutrition courses during your study was?			0.9
	Theoretical	252(93.7)	17(6.3)	
	Practical	17(94.4)	1(5.6)	
	Theoretical and practical	71(94.7)	4(5.3)	
	None of them	41(91.1)	4(8.9)	
	How can you describe your satisfaction with your nutrition education?			0.08
	Satisfied	170(96.6)	6(3.4)	
	Dissatisfied	124(90.5)	13(9.5)	
	Unsure	87(92.6)	7(7.4)	
	How can you describe your nutritional knowledge?			0.004†
	Good	146(96.1)	6(3.9)	
	Fair	189(94.5)	11(5.5)	
	Poor	46(83.6)	9(16.4)	
	How would you rate the importance of having basic nutritional knowledge?			0.0001†
Important	362(95)	19(5)		
Not important	9(81.8)	2(18.2)		
I don't know	10(66.7)	5(33.3)		
From where do get nutrition your nutrition information for your patients?			0.04†	
Internet	81(88)	11(12)		
Dietitian	93(97.9)	2(2.1)		
Nutrition Fact Sheets	26(96.3)	1(3.7)		
Other Nurses	28(93.3)	2(6.7)		
Newspapers	10(90.9)	1(9.1)		
Media (Radio, TV)	21(84)	4(16)		
Books	122(96.1)	5(3.9)		

	How many times the hospital you work at did provide you with nutritional training courses?			0.3
	Never	334(93)	25(7)	
	Once	35(100)	0(0.00)	
	Twice	12(92.3)	1(7.7)	

*: Chi square test †: significant at level of significance $\alpha < 0.05$

** : Operation room, Labor room, Normal nursery care.

The relationship between study variables and whether participants thought they had time to provide diet therapy to patients in need of special care is shown in table (4.20). Results showed a significant relationship concerning participants' perceived level of nutritional knowledge only (P=0001), participants who thought they had good level of nutritional knowledge thought they had time to provide diet therapy to patients in need of special care

Table (4.20): Relationship between study variables and whether participants thought they had time to provide diet therapy to patients in need of special care.

	Demographic factors	Answer		P- value*	
	Hospital	Yes N (%)	No N (%)	0.08	
Do you think you have time to provide diet therapy to patients in need of special care?	Al-Makased Islamic charitable hospital	216(87.4)	31(12.6)	0.08	
	Red crescent society hospital	26(100)	0(0.00)		
	Augusta victoria hospital	62(89.9)	7(10.1)		
	Saint John eyes hospital	22(75.9)	7(24.1)		
	Saint joseph hospital	33(91.7)	3(8.3)		
	Unit				0.5
	Intensive care unit	112(90.3)	12(9.7)		
Open ward	136(88.9)	17(11.1)			
Emergency ward	12(75)	4(25%)			
Outpatient clinic	17(85)	3(15)			
Other **	82(87.2)	12(12.8)	0.09		
Gender					
Male	162(85.3)	28(14.7)			
Female	197(90.8)	20(9.2)	0.3		
Educational level					
Diploma	79(91.9)	7(8.1)			
Bachelor degree	213(88.4)	28(11.6)	0.2		
Master\ high diploma	67(83.7)	13(16.3)			
Place of residency					
City	178(89.9)	20(10.1)	0.4		
Village	158(83.7)	27(14.6)			
Camp	23(95.8)	1(4.2)			
Experience			0.9		
5 years or less	145(86.3)	23(13.7)			
6 years -10 years	62(92.5)	5(7.5)			
11 years- 15 years	45(83.3)	9(16.7)			
16 years- 20 years	49(90.7)	5(9.3)			
more than 21 years	58(90.3)	6(9.4)	0.9		
Age					
20-24 years old	75(86.2)	12(13.8)			

	25-29 years old	96(87.3)	14(12.7)	
	30-34 years old	45(86.5)	7(13.5)	
	35-39 years old	32(91.4)	3(8.6)	
	40-44 years old	51(92.7)	4(7.3)	
	45 years or more	359(88.2)	8(11.8)	
Educational and professional characteristics	Did your study curriculum have nutrition courses?			0.6
	Yes	337(88)	46(12)	
	No	22(91.7)	2(8.3)	
	How many nutrition courses have you taken during your study?			0.6
	One	280(88.3)	37(11.7)	
	Two	52(85.2)	9(14.8)	
	Three	5(100)	0(0.00)	
	Do you think your training in the nutrition courses during your study was?			0.7
	Theoretical	234(87)	35(13)	
	Practical	16(88.9)	2(11.1)	
	Theoretical and practical	69(92)	6(8)	
	None of them	40(88.9)	5(11.1)	
	How can you describe your satisfaction with your nutrition education?			0.2
	Satisfied	161(91.5)	15(8.5)	
	Dissatisfied	119(86.9)	18(13.1)	
	Unsure	79(84)	15(16)	
	How can you describe your nutritional knowledge?			0.0001†
	Good	142(93.4)	10(6.6)	
	Fair	177(88.5)	23(11.5)	
	Poor	40(72.7)	15(27.3)	
	How would you rate the importance of having basic nutritional knowledge?			0.7
	Important	336(88.2)	45(11.8)	
	Not important	9(81.8)	2(18.2)	
	I don't know	14(93.3)	1(6.7)	
	From where do get nutrition your nutrition information for your patients?			0.9
	Internet	79(85.9)	13(14.1)	
Dietitian	84(88.4)	11(11.6)		
Nutrition Fact Sheets	23(85.2)	4(14.8)		
Other Nurses	26(86.7)	4(13.3)		
Newspapers	10(90.9)	1(9.1)		
Media (Radio, TV)	21(84)	4(16)		
Books	116(91.3)	11(8.7)		
How many times the hospital you work at did provide you with nutritional training courses?			0.1	
Never	318(88.6)	41(11.4)		
Once	28(80)	7(20)		
Twice	13(100)	0(0.00)		

*: Chi square test †: significant at level of significance $\alpha < 0.05$

**: Operation room, Labor room, Normal nursery care.

4.5 Conclusions

The result of the study showed that most of the study participants (86.6%) had fair level of the nutritional knowledge, and a high percentage of participants had good nutritional practices toward their patients. There were differences in the level of nutritional knowledge and practice according to study variables. Participants had poor level of nutritional knowledge in areas of selected clinical nutritional items. Significant relationships were found between nutritional knowledge regarding gender (female nurses had better level than male nurses), curriculum content to nutritional courses, participant method of training in the nutrition courses during their study, and participant rating of the importance of having basic nutritional knowledge for nurses. More than 85% of participants had good level of nutritional practice in this study. Significant relationships were found between nutritional practice regarding the hospitals were participants work in, the presence of nutritional courses in the participant's nursing education, and participant's perceived level of nutritional knowledge. .

Chapter six

Discussion

5.1 Introduction.

Nurses should have basic knowledge in nutrition because they use this knowledge in several settings, in health promotion as well as in the curative aspect (Feresin and Sonzogno, 2007). The levels of nutritional knowledge and practices regarding healthy food and clinical nutrition among nurses working at East Jerusalem hospitals were assessed. This study investigated the effect of some determinants such as working hospital, working unit, gender, age, level of education, place of residency, and years of experience. In addition this study assessed the effect of participants' professional characteristics on the level of nutritional knowledge and practice for nurses. This chapter discusses the study findings.

5.2 Main finding of the study.

Most participants had a fair level of nutritional knowledge, and most participants had good nutritional practices toward their patients. Most of the participants showed a good level of knowledge regarding balanced diet and its condition, food groups, and food pyramid, but showed moderate level of knowledge regarding micronutrients, and showed a poor level of knowledge regarding selected clinical nutritional items.

Significant differences were found between nurses' level of knowledge and gender, curriculum, mode of nutritional training during study, and participant rating to the importance of having basic nutritional knowledge for nurses.

5.3 Relation with other studies.

The level of the nutritional knowledge among nurses in this study is in line with similar studies that measured nutritional knowledge among nurses. A study conducted among Australian nurses reported a mean general knowledge score of (60 ± 8.4) (Schaller and James, 2005). Another study conducted in Canada reported a mean general knowledge score of $(69\% \pm 10.1)$ for Canadian public health nurses (Henderson, et al,1987). Furthermore an American study found an average score of $(65\% \pm 6)$ for American rural

nurses working in acute geriatrics and community/public health, with nurses working in acute care having the lowest knowledge scores of all groups (mean score 60%, \pm 7) (Lindseth, 1990, 1994 and 1997).

The results of the study were that, most of the nurses believed that balanced diet is the food with the highest energy content. This result might come from the fact that most nurses did not understand the healthy balanced diet and how it should be. This goes with the result of a study which discussed nutrition knowledge for Australian nurses; it found that most nurses did not know the number of serving units which was needed for a healthy body from different food groups (Nowak, et al, 2007). Also it goes with another Scandinavian study which was conducted in order to study doctors and nurses' self-reported knowledge in nutritional practice, with focus on ESPEN's guidelines in nutritional screening, assessment and treatment. This study found that 53% had difficulty calculating the patients' energy requirement (Mowe, et al, 2008).

In the area of selected clinical nutritional items participants showed a very poor level of knowledge, as most of them did not know "the excess of which nutrients may increase body calcium loss", and "what kind of food has the lowest glycemic index", and "what is the vitamin which has the most toxic effect when consumed excessively for a long time". This result could be considered within range for nurses in many countries like Sweden, Norway, and Denmark. The result of the Scandinavian study found that 66% lacked national guidelines for clinical nutrition (Mowe, et al, 2008). The study result goes with another study which was conducted in Ilorin, Nigeria to determine knowledge, attitude and practice of medical nutrition therapy by doctors and nurses. The Nigerian study found a very poor level of nutritional knowledge for health professionals. The study found that, the majority of health professionals taking care of diabetic patients were not adequately informed about diabetic nutrition therapy (Olarinye, H. and Alade, A. 2007). Also most of the nurses did not know the food which is protective against hypertension, this goes with the result of another study which discussed nutrition knowledge for nurses in regard to blood cholesterol and cardiovascular disease. Also, this study found that nurses were not adequately prepared to counsel about diet treatment for cardiovascular diseases including hypertension (Wilt, et al, 1990).

Also most of the participants did not know the difference between hydrogenated fat and unprocessed vegetable oil; in addition few nurses knew what the source for lycopene is. This might come from the fact that nurses did not study clinical nutritional courses. Furthermore a large percentage of participants did not know that, egg is a rich source of iron. This did not go with the result of another Australian study which examined the nutritional knowledge of Australian nurses and found that they had a moderate level of knowledge regarding micronutrients (Schaller and James, 2005).

The data of the present study regarding nurses' nutritional practice showed that, most participants had good nutritional practices toward their patients. This result may be in disagreement with a study carried out in the United States on physicians which showed that the frequency with which they reported practicing appropriate nutrition related behaviors were well below the minimal level of core competence (Levine, 1993). These high percentages of positive nutritional practice might be related directly to characteristics of the nursing profession. Also, nurses participate in nutrition therapy for patients in many ways such as: trying to help to prevent malnutrition, and assisting nutritionists and physicians in the early identification of physical signs of malnutrition (for instance by providing information regarding the patient's acceptance of meals) (Feresin and Sonzogno, 2007).

5.4 Level of nutritional knowledge for participant nurses.

The hospital in which participants work was not significantly correlated with the level of nutritional knowledge for nurses. This might be due to the types of hospitals because all of these hospitals obtain their nursing staff almost from the same educational background.

No significant relationship was found between the unit in which the participant works and the level of nutritional knowledge for nurses. Many studies examined the effect of unit on the level of nutritional knowledge for nurses and did not find a significant relationship. For example, a Korean study conducted to investigate nutritional attitudes and knowledge of nurses working in internal medicine, surgery and the intensive care unit found no significant relationship between the unit in which participants work and the level of nutritional knowledge (Kim and Chour, 2009). Furthermore, an Australian study included nurses who work in general hospitals, public and private. This study found no significant

relationship between the unit in which participants worked and their level of nutritional knowledge (Schaller and James, 2005). One study was carried out in order to determine the nutritional knowledge of hospital physicians in Turkey, it found significant differences in the level of nutritional knowledge according to unit (Ozcelik, 2007).

Gender was significantly associated with nurses' level of nutritional knowledge. In this study female nurses had a better level of nutritional knowledge than male nurses. This might be explained by differences in interest between males and female nurses; every one of them (male or female nurses) has their own area of concern (Parmenter, et. Al, 2000). This result did not go with the results of two previous studies. One was an Iranian cross sectional study conducted to evaluate the nutritional knowledge of physicians working in the general and private health sectors. This study found no significant difference according to gender (Ahmadi, 2009). The second was a Turkish study conducted on hospital physicians, which also found no significant relationship between level of nutritional knowledge and gender (Ozcelik, 2007).

Educational level was found to have no significant association with nurses' level of nutritional knowledge. This parallels with the results of many studies. One of these studies was conducted among nurses who work in long term health care facilities. It assessed the adequacy of the nurses' nutrition education, nutrition knowledge, and general attitudes about the diet of the elderly residents (Staneka, et al, 1991). Also, a Korean study as well as an American study found no significant association between nurses' educational level and nutritional knowledge (Kim and Chour, 2009, and Lindseth , 1990). Another study reported associations between nurses' educational level and level of nutritional knowledge, nurses with a diploma or general nurse training had a statistically significantly higher knowledge score when compared to nurses with a degree or postgraduate diploma (Schaller and James, 2005).

Place of residency was found to have no significant relationship with nurses' nutritional knowledge. This is similar with the result of another two studies, one conducted amongst nursing students in Athens, Greece (Yfanti, 2011), and another conducted in the United States amongst geriatric nurses (Staneka, et al, 1991).

Years of experience was also not significantly correlated with nurses' level of nutritional knowledge. It should be noted that most of the participants in this study (41.3%) had less than five years' experience in the nursing profession. Many studies found the same result (Kim and Chour, 2009 and Staneka, et al, 1991). For example, a study conducted in North Dakota, the United States, included nurses from hospitals, nursing homes, and community health agencies. This study found no significant association between nurses' years of experience and their level of nutritional knowledge (Lindseth, 1990). Other studies found evidence of a significant relationship between nurses' years of experience and level of nutritional knowledge. One study concluded that nurses with more than 10 years' experience had a statistically significant higher knowledge score than nurses with 10 years or less experience (Schaller and James, 2005). An American study found the same result (Lindseth, 1994).

In addition age did not have a significant relationship with nurses' level of nutritional knowledge. It should be noted that a high percentage of participants in this study (61.2%) is younger than 35 years old. Also other studies found no significant relationship between nurses' age and their level of nutritional knowledge (Ahmadi, 2009, Staneka, et al, 1991, and Lindseth, 1990). On the contrary, other studies found a significant relationship between nurses' age and their level of nutritional knowledge (Ozcelik, 2007, and Schaller and James, 2005). For example, an American study of nurses from two states was conducted to assess the factors affecting graduating nurses' nutritional knowledge. This study found that there was a significant relationship between nurses' age and their level of nutritional knowledge (Lindseth, 1994).

This study evaluated whether the participants had taken nutritional courses or not as part of their nursing education. The existence of nutritional courses within participants' nursing education is a variable which was found to have a significant relationship with nurses' level of nutritional knowledge in this. Nurses who study nutrition during their university education had a better level of nutritional knowledge than nurses who did not. This shows the importance of nutrition education during nursing studies; it helps in the development of highly educated nurses in this area.

Significant differences were found between nurses' level of nutritional knowledge and the format of their nutrition education and training during their education. Nurses who

theoretically and practically train during nutrition courses had a higher level of nutritional knowledge than nurses who studied nutrition in different methods. This shows the importance of combined methods in nutrition education to graduate nurses with a high level of nutritional knowledge. Nurses who study theoretically and practically may be exposed to more information and experiences, resulting in them being more knowledgeable. This is contradicted by the results of other studies which found no significant differences in the nurses' nutritional knowledge scores according to the formats of the nutrition courses they studied (Schaller and James, 2005, and Lindseth, 1994).

Furthermore, there is no significant relationship between the level of nutritional knowledge for nurses and their satisfaction with their nutrition education. This might be explained by the fact that nurses did not clearly understand the importance of nutrition education, and they did not know exactly what they should know about this issue. This is similar to the result of an American study (Staneka, et al, 1991).

Furthermore, there is no significant difference between nurses' level of nutritional knowledge and their perceived level of nutritional knowledge. Nurses might over or under estimate their real level of nutritional knowledge. This result does not differ from results of another study which discussed this topic (Yfanti, 2011). Another such example is a cross sectional study conducted to assess knowledge and belief in nutrition amongst medical practitioners, medical students in the clinical years of their course, and nursing students who had completed their basic course. This too found no significant difference between nurses' level of nutritional knowledge and their perceived level of nutritional knowledge (Dugdale, et al, 1979).

A significant relationship was also found between nurses' level of nutritional knowledge and their rating to the importance of having basic nutritional knowledge for nurses. Participants who believe it is important for nurses to have basic nutritional knowledge had a better level of nutritional knowledge. 88.5% of them had a fair level and 1.3% had a good level of nutritional knowledge.

There is no significant relationship between the level of nutritional knowledge and the source that the nurses used to obtain their nutritional information for their patients. On the contrary, another study examined the nutritional knowledge of physicians in Iran, and

concluded differently - finding that there was a significant improvement in the nutritional knowledge of physicians who used the Internet as a source of nutrition information compared to those that used other sources (Ahmadi, 2009).

Participation in nutrition training courses had no significant impact on nurses' level of nutritional knowledge. There is no information about training they took so the results not significant so may be the content or time or subjects were not suitable. This result is similar to the result of an Australian study which examined nutrition knowledge for nurses (Schaller and James, 2005). On the other hand many studies found a significant relationship between nutrition training courses during work life and nurses' nutritional knowledge (Ahmadi, 2009, and Cadman and Findlay, 1998). For example, a study was conducted in the Basque Country, Spain, to test if cooperative learning strategies will help to increase nutrition knowledge of nurses and nursing assistants caring for the elderly in different institutional communities. This study found that nurses who participated in more nutrition training courses had a better level of nutritional knowledge than those that did not, or who took fewer (Arroyo, 2008).

5.5 Relationship between study variables and nurses' nutritional practices.

The hospital in which participants work was correlated significantly with many nutritional practices which include: action taken when participants observe patients eating non-hospital food; whether participants evaluate the food eaten by their patients; action taken by participants when they observe patients not eating the recommended quantity or quality of food. This result goes with the result of a study which was conducted in Karlstad University at Sweden which included 44 nurses. It was done to examine nurses' perceptions of responsibility, knowledge and documentation focusing on internal nutrition and nursing practice regarding internal feeding in the intensive care unit (Persenius, 2006).

The unit in which participants work correlated significantly with many nutritional practices for participants which include: whether participants allow patients to eat food from outside the hospital; and whether participants evaluate the food eaten by their patients. There are two other studies which showed the same results. The first study was conducted in Sweden, and was carried out in order to explore the nurses' nutritional knowledge, attitudes and activities, and found significant differences in level of nutritional practice according to

unit (Perry, 1997). The second of these studies was cross sectional study carried out on nurses in a major academic medical center in New York City. This study was performed to assess nurse's knowledge, attitudes, and practice patterns concerning cholesterol and heart disease, and it also found significant differences in level of nutritional practice according to unit (Wilt, 1990).

Gender correlated with the following of nurses' nutritional practices: whether participants give nutritional advice to their patients; and whether participants consider it part of their role as a nurse to give nutritional advice to patients. This finding goes with the result of an American study which was conducted to provide data on medical students' perceived relevance of nutrition counseling. The study found significant differences in nutrition counseling regarding clinical nutrition according to sex, female were more likely to council than male (Spencer, et al, 2006).

Significant differences were found between participants' educational level and whether participants were interested to give nutritional advice to their patients. This result goes with the result of another previous study which was conducted on a sample of nurses working in New York City (Wilt, et al, 1990).

Place of residency did not correlate significantly with any of nurses' nutritional practices.

Years of experience did not correlate significantly with any of nurses' nutritional practices. This result does not go with the result of a previous interventional study conducted to test a new evidence based nutrition education program for home nurses. Within this study, analysis showed that nutritional practice for nurses who worked longer years was better than those who worked for a shorter period (Crogan and Evans, 2001).

Whether participants tried to select healthy foods for their patients was found to correlate significantly with age. This goes with the result of an American study which was conducted to assess physicians' nutritional practice. This study found that physicians who had an age of 45 years or more were more likely to select healthy food for their patients than younger physicians (Levine, et al, 1993).

The presence of nutritional courses in participants' nursing education was correlated significantly with many nutritional practices for participants which include: whether participants gave nutritional advice to patients; whether participants were interested to give nutritional advice to patients; whether participants considered giving nutritional education to patients to be part of their job; and the action taken when participants observed patients not eating the recommended quantity and quality of food. This does not go with the result of a previous American survey conducted to determine the degree to which primary-care physicians use clinical nutrition in their practice. This study found that Physicians who had studied nutrition did not use clinical nutrition skills in their practice to any greater degree than those who had not study nutrition during their period of training (Levine, et al, 1993).

The number of nutritional courses taken by participants during their nursing education did not correlate significantly with any nutritional practices for participants.

The method of training participants received during nursing education did significantly correlate with one nutritional practice: the action taken by participants upon observing their patients not eating the recommended quantity and quality of food.

The participants' level of satisfaction with their nutritional education was found to correlate significantly with the following nutritional practices for participants: whether participants tried to select healthy food for their patients; and the action taken by participants upon observing their patients eating food other than the hospital food.

whether participants gave nutritional advice to patients; whether participants were interested to give nutritional advice to patients; whether participants considered it part of their job to provide nutritional education to patients; and if participants asked their patients what they like to eat; whether participants discussed their patients' nutritional issues with his or her family; This goes with the result of a previous cross sectional study conducted in Scandinavian countries in order to examine doctors and nurses' self-reported knowledge in nutritional practice, with focus on ESPEN's guidelines in nutritional screening, assessment and treatment. This study found that participants, who thought they had good nutritional knowledge, had better nutritional practice. 42% of Danish participants who described

themselves as poor in their nutritional knowledge had poor nutritional practice (Morten, et al, 2008).

The participants' rating of the importance of having basic nutritional knowledge for nurses was correlated significantly with many nutritional practices for nurses. These include: whether participants gave nutritional advice to their patients; also if they were actually interested to give nutritional advice to their patients. Furthermore, whether participants usually tried to select health food for their patients showed a significant correlation. In addition, the participants' rating of the importance of basic nutritional knowledge correlated significantly with the action taken by participants upon noticing their patients not eating the recommended quantity and quality of food; and the action taken by participants after noticing their patients eating unhealthy food.

The source used by participants for giving nutritional information to patients correlated with four nursing nutritional practices. These were: whether participants were interested to give nutritional advice to patients; whether participants considered it part of their job as nurses to give nutritional advice to patients; the action taken by participants upon noticing their patients eating food other than the hospital's food; and the action taken when participants noticed their patients eating unhealthy food. This result goes with the result of an American study which was conducted on nurses working in New York City. This study found a significant relationship between the source of nutritional information used by nurses and their nutritional practice towards their patients (Levine, et al, 1993). The result of current study however, does not go with the result of an Australian cross sectional study that was conducted in eight metropolitan and regional hospitals in Queensland and three maternity hospitals in Canberra. This study was conducted to examine the general food and nutrition-related beliefs and knowledge of nursing professionals attending post-partum women. This study concluded that there were no significant differences between sources of nutrition information between those who frequently gave nutrition advice and those who did not (Nowak, et al, 2007).

The number of nutritional training courses provided to participants by their hospital correlated significantly with one nutritional practice which is whether participants asked their patients what they like to eat. This goes with the result of a previous qualitative study conducted in Melbourne, Victoria, Australia. The aim of the study was to explore nurses'

views and practices regarding use of the Malnutrition Screening Tool (MST) and the Malnutrition Universal Screening Tool (MUST) in acute hospital wards. The study concluded that there was an improvement in nurses' nutritional practices after they had received nutritional training (Raja, et al, 2008).

5.7 Strengths and limitations.

The current study is the first known study assessing nutritional knowledge among nurses in Palestine. The overall response rate in this study was 87.3%. The methodology was implemented rigorously and accurately. This study was however limited to the East Jerusalem area, furthermore some nurses refused to participate. It is also possible that those who responded may have had a better level of nutritional knowledge than those who did not, thus resulting in an overestimation of the level of nutritional knowledge.

5.8 Study conclusions.

Nurses' level of nutritional knowledge and practice regarding healthy food groups and clinical nutrition were assessed in this study. Many factors were found to have an effect on the level of nurses' nutritional knowledge. The results of this study will help in the development of nutritional training programs by decision makers at hospitals and nursing colleges. Despite the limitations, the present study is the first to assess these issues in Palestinian hospitals. This study also demonstrates the need for additional training to nurses in issues related to nutritional knowledge and practice, regarding healthy food groups and clinical nutrition. Furthermore, more detailed studies into factors affecting nurses' nutritional knowledge and practice, and more detailed studies into specific nutritional issues will be beneficial. Everyone knows that prevention is better than treatment, and nutrition is one of the most controllable risk factors for chronic diseases. Thus, more nutrition subjects should be included in nursing education and reinforcement of this education with service training.

5.7 Recommendations.

Finally there are some recommendations for decision makers at hospitals, nursing collages, and also for the researchers.

5.7.1 Recommendations for hospitals.

- 1- More investment on nutritional education and training for nurses especially in area of clinical nutrition.
- 2- Development guidelines for certain diseases like renal diseases, cardiovascular diseases...etc.
- 3- Continuous assessment and updating of nutritional knowledge among nurses.
- 4- Evaluation for the current nutrition training program contents for nurses.
- 5- Determine the nutrition knowledge needs for nurses working in particular areas of practice.
- 6- Nutritional management is a team responsibility, which requires a co-ordinated team approach, therefore collaborative efforts of all members of the health team development of policies and clinical-practice guidelines in this area.
- 7- More emphasis on nurses about the importance of continuous assessment of the patient's nutritional status and their response to treatments and interventions.
- 8- Collaboration in establishing guidelines on nutritional practice to improving standards and support clinical practice, by placing a strong emphasis on theoretical concepts, skill development and the use of critical appraisal skills.
- 9- Everyone know that prevention is better than treatment, and nutrition is one of the most controllable risk factor for chronic diseases, so more nutrition subjects should be included in nursing education.

5.7.2 Recommendations for decision maker at nursing colleges

1. Nurses are ideally placed to act as nutrition educators and they therefore need a sound knowledge of general nutrition relevant to their area of practice. Nutrition education should be emphasized in nursing colleges programs.
2. More emphasis on nutrition knowledge and practice standard for graduates may help promote the importance of nutrition in health and disease to nursing practice.
3. Since the current nutrition curriculum in nursing program may be inadequate, the need for change in this curriculum must be considered and the uniqueness of nutrition curriculum in each nursing college must be considered before any changes.
4. Nursing educators should design appropriate type and method of educational courses to get better nutritional knowledge and practice levels.
5. Insertion of nutritional subject in other nursing education curriculums.
6. A combination of an integrated nutrition curriculum during the basic education, together with post-graduate studies for nurses.

5.7.3 Recommendations for future research.

- 1- Nurses are receiving nutrition requests and they are giving nutrition advice, however, nurses may be providing inaccurate information to clients; more studies into this area would be useful.
- 2- Measurement of other health professionals' nutritional knowledge and practice, which may provide nutrition information to patients.
- 3- More detailed studies into factors affect nurses' nutritional knowledge and practice, and more detailed studies into specific nutritional issue will be beneficial.

- 4- Suggestion for further research on the effect of nutrition education of nursing staff on the health of their patients. It would be important to know if this education program is affecting the health of their patients.
- 5- More researches about nutrition to include a sample from other hospitals in West Bank and Gaza.

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Appendix A



Al- Quds University

Faculty of public health

I am a master student at the faculty of public health\ Al-Quds University. I am conducting a study concerning nutritional knowledge and practices regarding healthy food and clinical nutrition among nurses working at East Jerusalem hospitals. This study is part of the requirement for my master degree. I really appreciate your cooperation by filling this questionnaire, which may need few minutes of your time. I assure you that all the information will be very confidential and it will be used only for research purposes. You have the right to participate or to withdraw from this study at any time you want without any explanation.

Azeez Attawna

Thank you

ملاحظه:-

- الرجاء الاجابه على جميع الاسئله الوارده في استبيان.
- الرجاء الاجابه على الاسئله حسب المطلوب لكل سؤال.
- الرجاء عدم العوده الى اجابه سؤال تم الاجابه عليه مسبقا.

21) In your opinion, how can we improve nutritional care of patients?

- a. By feeding the patients well.
- b. By doing a nutritional assessment and working closely with the dietician and doctor.
- c. By referring the patient to the doctor.
- d. By giving nurses more training on patients nutrition

Section two: Healthy food groups:

22) Please answer the following statement

a. Importance of Healthy Food :-

	Yes	No	I do not know
(1) Provides body with power and activity			
(2) Regulates digestion, absorption and food metabolism			
(3) Enhances body immunity against diseases			
(4) Enhances recovery from diseases			
(5) Helps growth and development of body			

a. Basic Criteria of Healthy Food

	Yes	No	Do not know
(1) Contains some nutrients according to human needs.			
(2) Contains varied food, and acceptable in shape and taste.			
(3) Should be in agreement with economic conditions.			
(4) Should be in agreement with habits and religious norms in community			
(5) Don't contain fibers			
(6) Free from microbes or harmful substances			

23) Please choose the right answer.

a. Importance of carbohydrates

1. Provide energy
2. Body growth
3. Body Protection
4. Other benefits

b. Importance of lipids

1. Provide energy
2. Body
3. Body Protection
4. Other benefits

c. Importance of proteins

1. Provide energy
2. Body growth
3. Body protection
4. Other benefits

d. Importance of vitamins and minerals

1. Provide energy
2. Body growth
3. Body protection
4. Other benefits

e. Food with the highest energy level

1. Starch 2. Sugar 3. Oil 4. Honey

f. The required amount of water in liter for an adult male per day is:

- a. 3.5 L/day b. 2.5 L/day c. 1.5 L/day d. I do not know.

g. The required amount of water in liter for an adult female per day is:

- a. 2.5 L/day b. 3.5 L/day c. 1.5 L/day d. I do not know.

24) Please put (×) under the right answer that reflect(s) nutrient group which suitable to the mentioned foods

Food	Carbohydrates	proteins	Lipids and fats	Vitamins	Minerals
Bread					
Honey					
Chicken					
Olive oil					
Table salt					

25) Please put (×) under the right answer which reflect calcium content in each of the following foods

Food	Rich in calcium	Poor in calcium	I do not know
Eggs			
Milk			
Meat			
Bread balady			

26) Please put (×) under the right answer which resembles the factor that affects (increase or decrease) calcium absorption

Factor	Increase calcium absorption	Decrease calcium absorption	I do not know
Coffee and Tea			
Orange and Lemons			
Exposure to sunlight			

27) Please put (×) under the right answer which reflects Iron content in each of the following foods

Food	Rich in Iron	Poor in Iron	I do not know
Eggs			
Apple			
Red meat			
Liver			

38) What is the status of the body weight of an adult whose body mass index is rated between 25.0-29.9 kg/m²?

- a. Underweight b. Normal weight c. Overweight d. I do not know.

39) Short-term diets are usually successful at achieving weight loss because they:

- a. Decrease appetite b. Cause the body to lose water
c. Burn large amount of stored fat d. I do not know.

Section three: Clinical nutrition

40) Malnutrition Definition

- a. Lack of one nutrient for long time
b. Increase the intake of one nutrient for long time
c. Lack or increase the intake of one or more nutrients for long time
d. I do not know.

Please chose the right answer

41) Excess of which nutrient may increase loss of body calcium:

- a. Protein b. Saturated fat c. Potassium d. I do not know.

42) Which nutrient is protective against hypertension?

- a. Potassium b. Chloride c. Iron d. I do not know.

43) What type of dietary fiber is helpful in lowering the blood cholesterol level?

- a. Wheat bran b. Soluble fiber c. Insoluble fiber d. I do not know.

44) A nutrient believed to help prevent thrombosis is:

- a. Omega -3 fatty acids b. Selenium c. Vitamin E d. I do not know.

45) Which vitamin has the most toxic effect when consumed excessively for a long time?

- a. Vitamin A b. Vitamin E c. Vitamin D d. I do not know.

46) Which substance raises the blood HDL-cholesterol level?

- a. Alcohol b. Animal protein c. Riboflavin d. I do not know.

47) A type of food believed to have a preventive effect on various types of cancer is:

- a. Fruit and vegetables b. Milk c. Meat d. I do not know.

48) A common nutrient deficiency in alcoholic is:

- a. Vitamin B1 (thiamin) b. Iron c. Protein d. I do not know.

49) The nutrient strongly associated with the prevention of neural tube defects is:

- a. Folate b. Zinc c. Beta-carotene d. I do not know.

50) Which of the following foods have the lowest glycemic index?

- a. Ice cream b. Rice c. Banana d. I do not know.

51) Please put (×) to classify the mentioned disorder as nutritional disease or non nutritional diseases.

Disease	Nutritional diseases	Non nutritional diseases	I do not know
Obesity			
Hepatitis			
Tuberculosis			
Night blindness			
Iron deficiency anemia			

52) The food groups suggested for hypertension patients are:

- a. Fruit, vegetables b. Meat and milk. c. Breads and cereal. d. I do not know.

53) According to the American dietetic association the food that has more effect on blood sugar is:

- a. Carbohydrates. b. Fats. c. Proteins. d. I do not know.

54) The food which decreases glucose absorption is:

- a. Rice. B. Black Bread (whole wheat bread) C. Milk. d. I do not know.

Thank you

Appendix B



جامعة القدس كلية الصحة العامة

انا طالب ماجستير في كلية الصحة العامة | جامعة القدس. اقوم بعمل دراسة عن المعلومات والممارسات الغذائية بما يخص المجموعات الغذائية الصحية والتغذية العلاجية ما بين الممرضين العاملين في مستشفيات القدس. وهذه الدراسة متطلب اساسي من اجل حصولي على درجة الماجستير، انا اقدر تعاونكم معي بتعبئة هذه الاستمارة والتي قد تستغرق عدة دقائق من وقتكم. علما ان جميع المعلومات الواردة فيها ستعامل بسريه تامه وتستخدم لأغراض الدراسة فقط، ولكم الحق في الاشتراك في أي وقت دون ابداء الاسباب.

عزيز العطاونة
وشكرا لكم

ملاحظه:-

- الرجاء الاجابة على جميع الاسئلة الواردة في الاستبيان.
- الرجاء الإجابة على الأسئلة حسب المطلوب لكل سؤال.
- الرجاء عدم العودة الى اجابه سؤال تم الإجابة عليه مسبقا.

القسم الديموغرافي :

الرجاء وضع إشارة (√) في مربع الإجابة الصحيحة

مستشفى سانت جوزيف	<input type="checkbox"/>	مستشفى الأوغستا فكتوري	<input type="checkbox"/>	مستشفى جمعية الهلال الأحمر	<input type="checkbox"/>	مستشفى جمعية المقاصد الخيرية الإسلامية	<input type="checkbox"/>	المستشفى	
اقسام اخرى....	<input type="checkbox"/>	العيادات الخارجية	<input type="checkbox"/>	اقسام مفتوحة	<input type="checkbox"/>	أقسام العناية المكثفة	<input type="checkbox"/>	القسم	
انثى <input type="checkbox"/>				ذكر <input type="checkbox"/>				الجنس	
درجه الدكتوراه	<input type="checkbox"/>	ماجستير دبلوم عالي	<input type="checkbox"/>	بكالوريوس	<input type="checkbox"/>	دبلوم	<input type="checkbox"/>	المستوى العلمي	
مخيم <input type="checkbox"/>				قرية <input type="checkbox"/>	مدينة <input type="checkbox"/>		<input type="checkbox"/>	مكان الإقامة	
العمرسنة			 سنة				<input type="checkbox"/>	عدد سنوات الخبرة

الرجاء اختيار الإجابة المناسبة

١) هل احتوت المناهج الدراسية التي درستها على مساقات تغذية؟
أ) نعم ب) لا

إذا كانت اجابتك نعم:

٢) كم عدد مساقات التغذية التي درستها خلال فترة دراستك؟
أ) مساق واحد ب) مساقان ج) ثلاثة مساقات د) أكثر من ثلاثة مساقات

٣) هل تعتقد أن التدريب العملي الذي تلقينته في مساقات التغذية خلال فترة دراستك كان:
أ) تدريب نظري ب) تدريب عملي ج) كلاهما (تدريب نظري وعملي) د) ليس أي منهما

٤) كيف تصف مستوى رضاك عن طريقه تعليمك لماده التغذية؟
أ) راضي ب) غير راضي ج) غير متأكد

٥) كيف تصف معرفتك بالتغذية؟
أ) جيدة ب) متوسطة ج) رديئة

٧) كيف تقيم أهمية الحصول على المعرفة الاساسية في التغذية بالنسبة للمرضين؟
أ) مهمة ب) غير مهمة ج) لا أعرف

٧) من أين تحصل على المعلومات المتعلقة بالتغذية من أجل مرضاك (الرجاء اختيار اجابه واحده فقط) ؟

- أ) الإنترنت
ب) أخصائي التغذية
ج) مقالات علميه تهتم بالتغذية
د) ممرضين آخرين
هـ) جرائد
و) وسائل الإعلام (تلفزيون\ راديو)
ز) مصادر أخرى.....

٨) كم عدد المرات التي حصلت فيها على تدريب مختص بالتغذية من المستشفى الذي تعمل فيه؟
أ) ولا مره
ب) مرة واحدة
ج) مرتان
د) ثلاث مرات او اكثر

الجزء الثاني: الممارسات التغذوية لدى الممرضين:-

٩) هل تزود المرضى بنصائح حول التغذية؟

- أ) نعم
ب) لا

١٠) هل انت فعلا مهتم باعطاء نصائح غذائية للمرضى؟

- أ) نعم
ب) لا

١١) هل هو جزء من عملك كممرض تزويد المرضى بمعلومات تتعلق بالتغذية؟

- أ) نعم
ب) لا

١٢) هل تحاول عادة اختيار طعام صحي لمرضاك؟

- أ) نعم
ب) لا

١٣) هل تسمح لمرضاك تناول طعام من خارج المستشفى؟

- أ) نعم، لجميع المرضى
ب) نعم، لبعض المرضى
ج) لا، لجميع المرضى

١٤) إذا رأيت مرضاك يأكلون طعاما من خارج المستشفى فأنت:

أ) تخبر اختصاصي الحمية / اختصاصي التغذية.

ب) تخبر الطبيب.

ج) تناقش خيارات الحمية مع المريض.

د) لا تفعل شيئا.

١٥) هل تسأل مرضاك ماذا يفضلون ان يأكلوا؟

- أ) نعم، لجميع المرضى
ب) نعم، لبعض المرضى
ج) لا، لجميع المرضى.

١٦) هل تقيم الطعام الذي يتناوله مرضاك؟

- أ) نعم، لجميع المرضى
ب) نعم، لبعض المرضى
ج) لا، لجميع المرضى

١٧) إذا لاحظت أن مرضاك لا يتناولون الكميات ولا الأنواع الموصى بها من الطعام فأنت :

أ) تخبر اختصاصي الحمية / اختصاصي التغذية.

- (ب) تخير الطبيب.
 (ج) تناقش خيارات الحمية مع المريض.
 (د) لا تفعل شيئاً.

١٨ هل تناقش الامور الغذائية المتعلقة بالمريض مع عائلته؟
 (أ) نعم، لجميع المرضى (ب) نعم، لبعض المرضى (ج) لا، لجميع المرضى

١٩ ماذا ستفعل لو لاحظت أن مرضاك يتناولون طعاماً غير صحي؟
 (أ) أستشير أخصائي الحمية (ب) ترجع إلى الطبيب
 (ج) تناقش خيارات الحمية مع المريض (د) لا تفعل شيئاً

٢٠ هل تعتقد أن لديك وقت لتقديم علاج بالحمية للمرضى الذين يحتاجون إلى رعاية خاصة كالمعاقين؟

(أ) أحياناً، نعم (ب) لا يسمح لي الوقت للقيام بذلك (ج) دائماً لدي الوقت للقيام بذلك.

٢١ كيف تعتقد انه يمكن تحسين العناية بالمرضى فيما يتعلق بالتغذية؟
 (أ) إطعام المرضى بشكل جيد.
 (ب) بإجراء تقييم للتغذية والعمل على مقربة من اختصاصي التغذية والطبيب.
 (ج) تحويل المريض إلى الطبيب
 (د) عن طريق اعطاء الممرضين تدريب أكثر حول احتياجات المرضى الغذائية.

القسم الثاني: المجموعات الغذائية الصحية:-
 ٢٢ الرجاء الإجابة على ما يلي

(أ) أهمية الغذاء الصحي:

لا اعرف	لا	نعم	
			(١) يزود الجسم بالطاقة والحيوية
			(٢) ينظم الهضم والامتصاص وعملية تبدل المواد (الأيض)
			(٣) يعزز مناعة الجسم ضد الامراض
			(٤) يسرع الشفاء من الامراض
			(٥) يساعد في نمو الجسم وتطوره

(ب) المواصفات الأساسية للطعام الصحي:

لا اعرف	لا	نعم	
			(١) يحتوي على بعض المواد الغذائية حسب حاجة الانسان
			(٢) يحتوي غذاء متنوع وشكل وطعم مقبول
			(٣) يجب ان يكون متوافق مع الوضع الاقتصادي
			(٤) يجب ان يكون متوافق مع العادات والدين في المجتمع
			(٥) لا يحتوي على الياف
			(٦) خال من الميكروبات والمواد الضارة

٢٣ الرجاء اختيار الإجابة الصحيحة.

(أ) أهمية الكربوهيدرات (١) تزويد الطاقة (٢) نمو الجسم (٣) حمايه الجسم (٤) فوائد اخرى

ب) أهمية المواد الدهنية

(١) تزويد الطاقة (٢) نمو الجسم (٣) حماية الجسم (٤) فوائد اخرى

ج) أهمية البروتينات

(١) تزويد الطاقة (٢) نمو الجسم (٣) حماية الجسم (٤) فوائد اخرى

د) أهمية الفيتامينات والاملاح

(١) تزويد الطاقة (٢) نمو الجسم (٣) حماية الجسم (٤) فوائد اخرى

هـ) أكثر المواد الغذائية طاقة هو

(١) النشا (٢) السكر (٣) الزيت (٤) العسل

و) كمية الماء المطلوبة بالتر للذكر البالغ يوميا هي:

(١) ٣.٥ لتر يوميا (٢) ٢.٥ لتر يوميا (٣) ١.٥ لتر يوميا (٤) لا اعلم.

ز) كمية الماء المطلوبة بالتر للأنثى البالغة يوميا هي:

(١) ٣.٥ لتر يوميا (٢) ٢.٥ لتر يوميا (٣) ١.٥ لتر يوميا (٤) لا اعلم.

٢٤) الرجاء (x) تحت الإجابة الصحيحة التي تمثل المجموعة الغذائية الملائمة للأغذية المذكور وضع اشارة

الغذاء	الكربوهيدرات	البروتينات	المواد الهنية والدهون	الفيتامينات والاملاح
الخبز				
العسل				
الدجاج				
زيت الزيتون				
ملح الطعام				

٢٥) الرجاء (x) تحت الاجابة الصحيحة التي تشير إلى محتوى الكالسيوم في كل من الأغذية التالية وضع إشارة

الغذاء	غني بالكالسيوم	يفتقر إلى الكالسيوم	لا اعرف
البيض			
الحليب			
اللحوم			
الخبز البيتي (البلدي)			

٢٦) (x) تحت الاجابة الصحيحة التي تمثل حالة امتصاص الكالسيوم في كل من الأغذية التالية ارجاء وضع إشارة

العامل المؤثر	يزيد امتصاص الكالسيوم	يقلل امتصاص الكالسيوم	لا اعرف
---------------	-----------------------	-----------------------	---------

			القهوة والشاي
			البرتقال والليمون
			التعرض لأشعة الشمس

٢٧) الرجاء (x) تحت الاجابة الصحيحة التي تشير إلى محتوى الحديد في كل من الأغذية التالية وضع إشارة

الغذاء	غني بالحديد	يفتقر للحديد	لا اعرف
البيض			
التفاح			
لحوم الحيوانات			
الكبد			
البطاطا			
البانجان			

٢٨) الرجاء (x) تحت الاجابة الصحيحة التي تمثل حالة امتصاص الحديد في كل من الأغذية التالية وضع إشارة

العامل / المؤثر	يزيد امتصاص الحديد	يقلل امتصاص الحديد	لا اعرف
القهوة والشاي			
البرتقال والليمون			
اللحوم			
الحليب ومنتجات الالبان			
الفواكه والخضراوات الطازجة			

٢٩. الرجاء اختيار الاجابة الصحيحة

أ) هل سمعت عن الهرم الغذائي؟

ب) لا

أ) نعم

ب) مجموعات الهرم الغذائي هي :

أ) الماء، الخضراوات، الفواكه، منتجات الألبان، اللحوم.

ب) الحبوب، الخضراوات، الفواكه، منتجات الألبان، اللحوم.

ج) الحبوب، الخضراوات، المشروبات الغازية، الفواكه، اللحوم.

د) لا اعرف.

٣٠) نوع رئيسي من الأحماض الدهنية في زيت الزيتون:
أ) أحماض دهنية مشبعة (ب) أحماض دهنية غير مشبعة متعددة
ج) أحماض دهنية غير مشبعة أحادية (د) لا اعرف

٣١) ما هي نسبة الطاقة التي يجب اكتسابها من الدهون يوميا؟
أ) ١٥ - ٢٠ % (ب) ٢٥ - ٣٠ % (ج) أكثر من ٣٠ % (د) لا اعرف.

٣٢) المصدر الأغنى بفيتامين B-12 هو:
أ) الفواكه (ب) البقوليات
ج) اللحوم (د) لا اعرف.

٣٣) عدد السرعات الحرارية في ١ غم من الدهون:
أ) ٤ (ب) ٧ (ج) ٩ (د) لا اعرف.

٣٤) أي من المواد الغذائية التالية ليست مضادة للأكسدة؟
أ) فيتامين E (ب) بيتاكاروتين (ج) الحديد (د) لا اعرف.

٣٥) بالمقارنة مع الزيت النباتي الغير معالج، تحتوي الدهون المهدرجة على:
أ) مقدار اكبر من الأحماض الدهنية غير المشبعة
ب) مقدار اكبر من الأحماض الدهنية المتحولة
ج) مقدار اكبر من الكولسترول
د) لا اعرف.

٣٦) أي من المواد الغذائية التالية مصدر غني بالليكوپين؟
أ) الحليب (ب) البندورة (ج) القرنييط (د) لا اعرف.

٣٧) أي من التالية هو الحامض الدهني الرئيسي في البيض؟
أ) الغير مشبع الأحادي (ب) الغير مشبع المتعدد (ج) المشبع (د) لا اعرف.

٣٨) ما هو تقييم وزن جسم الشخص البالغ الذي يتراوح مؤشر كتلة جسمه بين ٢٥ - ٢٩.٩ كغم/م^٢؟
أ) اقل من الوزن الطبيعي (ب) وزن طبيعي (ج) أعلى من الوزن الطبيعي (د) لا اعرف.

٣٩) الحميه قصيره المدى عادة تنجح في تنزيل الوزن لأنها:

(ب) تجعل الجسم يفقد الماء
(د) لا اعرف.

(أ) تقلل الشهية
(ج) تحرق كمية كبيرة من الدهون المخزنة

القسم الثالث: التغذية العلاجية

٤٠) تعريف سوء التغذية

- (أ) نقص إحدى المواد الغذائية لفترة طويلة
(ب) زيادة تناول إحدى المواد الغذائية لفترة طويلة
(ج) نقصان أو زيادة تناول واحدة أو أكثر من المواد الغذائية لفترة طويلة
(د) لا أعرف

الرجاء اختيار الاجابة الصحيحة

٤١) زياده أي من المواد الغذائية التالية ربما يزيد من خسارة الكالسيوم من الجسم:
(أ) البروتينات (ب) الدهون المشبعة (ج) البوتاسيوم (د) لا اعرف.

٤٢) أي من المواد الغذائية التالية تحمي من ارتفاع ضغط الدم؟
(أ) البوتاسيوم (ب) الكلوريد (ج) الحديد (د) لا اعرف.

٤٣) ما هو نوع الألياف الغذائية التي تساعد في تخفيض مستوى الكوليسترول في الدم
(أ) نخالة القمح (ب) الألياف قابلة للذوبان (ج) ألياف غير قابلة للذوبان (د) لا اعرف.

٤٤) ماده غذائية يعتقد انها تساعد في منع تخثر الدم:
(أ) أحماض Omega-3 الدهنية (ب) السيلينيوم (ج) فيتامين E (د) لا اعرف

٤٥) أي من الفيتامينات التالية له اكبر تأثير سمي عندما يتم تناوله بإفراط لفترة طويلة؟
(أ) فيتامين A (ب) E (ج) فيتامين D (د) لا اعرف

٤٦) أي المواد التالية ترفع مستوى البروتين الدهني عالي الكثافة في الدم؟
(أ) الكحول (ب) البروتين الحيواني (ج) الريبوفلافين (د) لا اعرف.

٤٧) نوع من الطعام يعتقد أن له اثر وقائي من العديد من أنواع أمراض السرطان:-
(أ) الفواكه والخضراوات (ب) الحليب (ج) اللحوم (د) لا اعرف.

٤٨) ماده غذائية تنقص عند مدمني الكحول هي:
أ) فيتامين B1 (ثيامين) ب) الحديد ج) البروتين د) لا اعرف

٤٩) المادة الغذائية المرتبطة بقوة بمنع تشوهات الأنبوب العصبي هي:-
أ) الفولات ب) الزنك (الخاصين) ج) بيتا كاروتين د) لا اعرف.

٥٠) أي من الأغذية التالية تسبب أقل نسبة ارتفاع للسكر؟
أ) البوظة ب) الأرز ج) الموز د) لا اعرف.

٥١) الرجاء وضع إشارة (x) لتصنيف الخلل المذكور كمرض غذائي او مرض غير غذائي.

المرض	مرض غذائي	مرض غير غذائي	لا اعرف
السمنة			
التهاب الكبد الوبائي			
السل			
العشى الليلي			
مقر الدم الناتج عن نقص الحديد			

٥٢) المجموعة الغذائية التي ينصح بها مرضى ارتفاع ضغط الدم هي؟
أ) فواكه وخضراوات ب) لحوم وحليب ج) خبز وحبوب د) لا اعرف

٥٣) حسب جمعيه التغذية الامريكية فإن الغذاء الذي له اكبر اثر في سكر الدم هو
أ) الكربوهيدرات ب) الدهون ج) البروتينات د) لا اعرف

٥٤) الغذاء الذي يقلل امتصاص الجلوكوز هو:
أ) الأرز ب) الخبز الاسود (خبز القمح) ج) الجليب د) لا اعرف

شكرا لكم

Appendix C: The name and specialty of experts who review the questionnaire.

#	Name of expert	Specialty
1	Prof. Adnan Shqueir	Dean of Research/Professor/Chairperson of Biology \ Bethlehem University
2	Assistant prof. Sabri Sghair	The dean of nutrition departments\ Hebron University
3	Ismail Halahla	Chair Person of nutrition departments\ Al- Makased hospital
4	Afaf Jaqaman	Chair Person of nutrition and dietetics department \ Bir Zeit University
5	Naji Abu Ali	Head of continuous education\ Al-Makased hospital, also lectures for research methodology at Bethlehem university.

Appendix D

Al-Quds University
Jerusalem
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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



جامعة القدس
القدس
كلية الصحة العامة

التاريخ: 2011/4/11

الرقم: ك ص ع / 2011/6

حضرة السيد سليمان تركمان المحترم
مدير قسم التمريض / مستشفى المقاصد

الموضوع: تسهيل مهمة الطالب عزيز عطاونة

تحية طيبة وبعد،،

يقوم الطالب عزيز سليمان عطاونة ماجستير صحة عامة / كلية الصحة العامة/ جامعة القدس بإجراء بحث بعنوان:
"Nutritional knowledge among nurses working at Jerusalem Hospitals "
وهو بحاجة لمعلومات إحصائية تخص العاملين في قسم التمريض كمتطلب لبحث رسالة الماجستير في الصحة العامة.
أرجو من حضرتكم التكرم بتسهيل مهمة الطالب وتزويده بالمعلومات اللازمة، علماً بأن هذه المعلومات خاصة للبحث العلمي فقط.

وتقبلوا مع فائق الاحترام،،

د. أسامة الإمام الصحة العامة
Faculty of Public Health
عميدة كلية الصحة العامة

نسخة: الملف

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فرع غزة / تلفاكس 08-2884411-2884422

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القدس
كلية الصحة العامة

التاريخ: 2011/4/11

الرقم: ك ص ع / ٤٥٤ / 2011

حضرة السيدة سلام رطروط المحترمة
مديرة قسم التمريض / مستشفى الهلال الأحمر / القدس

الموضوع: تسهيل مهمة الطالب عزيز عطاونة

تحية طبية وبعد،،

يقوم الطالب عزيز سليمان عطاونة ماجستير صحة عامة / كلية الصحة العامة / جامعة القدس بإجراء بحث بعنوان:
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أرجو من حضرتكم التكرم بتسهيل مهمة الطالب وتزويده بالمعلومات اللازمة، علماً بأن هذه المعلومات خاصة للبحث العلمي فقط.

وتقبلوا مع فائق الاحترام،،

د. محمد أمسي الإمام
كلية الصحة العامة
مديرة كلية الصحة العامة
Faculty of Public Health
Al-Quds University

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كلية الصحة العامة

التاريخ: 2011/4/11

الرقم: ك ص ع / ٤٢٦ / 2011

حضرة السيد احمد معالي المحترم
مدير قسم التمريض / مستشفى العيون

الموضوع: تسهيل مهمة الطالب عزيز عطاونة

تحية طبية وبعد،،

يقوم الطالب عزيز سليمان عطاونة ماجستير صحة عامة / كلية الصحة العامة / جامعة القدس بإجراء بحث بعنوان:
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أرجو من حضرتكم التكرم بتسهيل مهمة الطالب وتزويده بالمعلومات اللازمة، علماً بأن هذه المعلومات خاصة للبحث العلمي فقط.

وتقبلوا مع فائق الاحترام،،

د. اسمعيل
الإمام
Faculty of Public Health
كلية الصحة العامة

نسخة: الملف

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التاريخ: 2011/10/8

الرقم: ك ص ع/921/2011

حضرة السيدة ريماء عواد المحترمة
مديرة قسم التمريض / المستشفى الفرنسي

الموضوع: تسهيل مهمة الطالب عزيز عطاونة

تحية طيبة وبعد،،

يقوم الطالب عزيز سليمان عطاونة ماجستير صحة عامة / كلية الصحة العامة/ جامعة القدس بإجراء بحث بعنوان:
"Nutritional knowledge among nurses working at Jerusalem Hospitals"
وهو بحاجة إلى استكمال بحث الرسالة لذا أرجو من حضرتكم التكرم بتسهيل مهمة الطالب في توزيع استبانته الدراسية
على قسم التمريض، علماً بأن هذه المعلومات خاصة للبحث العلمي فقط.

وتقبلوا مع فائق الاحترام،،

جامعة القدس
كلية الصحة العامة
Faculty of Public Health
AL-QUDS UNIVERSITY

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جامعة القدس

القدس

كلية الصحة العامة

التاريخ: 2011/10/8

الرقم: ك ص ع / ٩١٤ / 2011

حضرة السيد وليم الحذوة المحترمة
مديرة قسم التمريض / مستشفى المطع

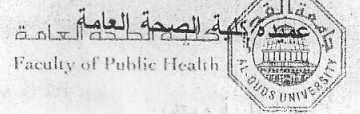
الموضوع: تسهيل مهمة الطالب عزيز عطاونة

تحية طبية وبعد،،

يقوم الطالب عزيز سليمان عطاونة ماجستير صحة عامة / كلية الصحة العامة / جامعة القدس بإجراء بحث بعنوان:
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على قسم التمريض، علماً بأن هذه المعلومات خاصة للبحث العلمي فقط.

وتقبلوا مع فائق الاحترام،،

د. أسى الإمام



نسخة: الملف

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Appendix E

The level of knowledge for participants who knew the right answer for nutrition knowledge questions about healthy food balanced and its conditions.

Questions	Answer	N (407)	Percent %
Importance of healthy food	Provides body with power and activity: a)Yes* b) No c) I don't know	388	95.3
	Regulates digestion, absorption and food metabolism: a)Yes* b) No c) I don't know	373	91.6
	Enhances body immunity against disease: a)Yes* b) No c) I don't know	381	93.6
	Enhances recovery from diseases: a)Yes* b) No c) I don't know	381	93.6
	Helps growth and development of body: a)Yes* b) No c) I don't know	389	95.6
Basic criteria of healthy food	Contains some nutrients according to human needs: a)Yes b) No* c) I don't know	26	6.4
	Contains varied food, and acceptable in shape and taste: a)Yes* b) No c) I don't know	328	86.6
	Should be in agreement with economic conditions: a)Yes* b) No c) I don't know	268	65.8
	Should be in agreement with habits and religious norms in community: a)Yes* b) No c) I don't know	300	73.7
	Don't contain fibers: a)Yes b) No* c) I don't know	317	77.9
	Free from microbes or harmful substances: a)Yes* b) No c) I don't know	359	88.2

*: Right answer

Appendix F

The level of knowledge for participants who knew the right answer for nutrition knowledge questions about food groups.

Questions	N (407)	Percent %
The importance of carbohydrates is a)Provide energy* b) body growth c) body protection	366	89.9
The importance of lipids is a)Provide energy* b) body growth c) body protection	260	63.9
The importance of proteins is a)Provide energy b) body growth* c) body protection	334	82.1
The importance of vitamins and minerals is a)Provide energy b) body growth c) body protection*	277	68.1
The required amount of water in liter for an adult male per day is a)3.5L\day* b) 2.5L\day c) 1.5L\day	136	33.4
The required amount of water in liter for an adult female per day is a)3.5L\day b) 2.5L\day* c) 1.5L\day	187	45.9
Bread is categorized under which food group: a) Carbohydrate* b) Protein c) Lipids d)Minerals	372	91.4
Honey is categorized under the a) Carbohydrate* b) Protein c) Lipids d)Minerals	262	64.4
Chicken is categorized under which food group: a) Carbohydrate b) Protein* c) Lipids d)Minerals	331	81.3
Olive oil is categorized under which food group: a) Carbohydrate b) Protein c) Lipids* d)Minerals	329	80.8
Table salt is categorized under which food group: a) Carbohydrate b) Protein c) Lipids d)Minerals*	374	91.9
A major type of fatty acids in olive oil is a) Saturated fatty acid b) Polyunsaturated fatty acid c) Monounsaturated fatty acid*	123	30.2
The richest source of vitamin B12 is a)Fruit b) Legumes c) Meat*	176	43.2
The number of kilocalories in one gram of fat is: a)4 b) 7 c) 9*	210	51.6
Compared with unprocessed vegetable oil, hydrogenated fats contain: a) More unsaturated fatty acids b) More transfatty acids* c)More cholesterol	45	11.1
Which of the following foods is a rich source of lycopene? a)Milk b) Tomatoes* c) cauliflower	83	20.4
Which of the following is the main fatty acid in the egg? a)monounsaturated b) Polyunsaturated c) Saturated*	117	28.7
Food with highest energy level is: a)Starch b) Sugar c) Oil*	103	25.3

*: Right answer

Appendix G

The level of knowledge for participants who knew the right answer about micronutrients (iron and calcium) and factors affecting its absorption.

Questions	N(407)	Percent %
Eggs are: a)Rich in calcium* b) Poor in calcium c) I don't know	338	83
Milk is: a)Rich in calcium* b) Poor in calcium c) I don't know	392	96.3
Meat is: a)Rich in calcium* b) Poor in calcium c) I don't know	289	71
Traditional bread is: a)Rich in calcium b) Poor in calcium* c) I don't know	250	61.4
Coffee and Tea: a)Increases calcium absorption b) Decrease calcium absorption* c) I don't know	351	86.2
Orange and Lemons: a)Increases calcium absorption* b) Decrease calcium absorption c) I don't know	322	79.1
Exposure to sunlight: a)Increases calcium absorption* b) Decrease calcium absorption c) I don't know	322	79.1
Eggs are: a)Rich in Iron* b) Poor in Iron c) I don't know	137	33.7
Apple is: a)Rich in Iron b) Poor in Iron* c) I don't know	234	57.5
Red meat is: a)Rich in Iron* b) Poor in Iron c) I don't know	356	87.5
Liver is: a)Rich in Iron* b) Poor in Iron c) I don't know	386	94.8
Potato is: a)Rich in Iron b) Poor in Iron* c) I don't know	320	78.6
Eggplants are: a)Rich in Iron b) Poor in Iron* c) I don't know	219	53.8
Coffee and tea: a)Increases Iron absorption b) Decrease Iron absorption* c) I don't know	371	91.2
Orange and lemons: a)Increases Iron absorption* b) Decrease Iron absorption c) I don't know	352	86.5
Meat: a)Increases Iron absorption* b) Decrease Iron absorption c) I don't know	353	62.2
Milk and dairy products can: a)Increases Iron absorption b) Decrease Iron absorption* c) I don't know	148	36.4
Fresh fruit and vegetables can: a)Increases Iron absorption* b) Decrease Iron absorption c) I don't know	365	89.7

*: Right answer

Appendix H

The level of knowledge for participants who knew the right answer for nutrition knowledge questions about food pyramid.

Questions	N(407)	Percent %
Did you hear about the food group pyramid: a) Yes* b) No	361	88.7
Food pyramid groups are: a) Water, Vegetables, Fruit, dairy product, Meat. b) Grains, Vegetables, Fruit, dairy product, Meat*. c) Grains, Vegetables, Fruit, carbonated beverage, Meat.	148	36.4

*: Right answer

Appendix I

The level of knowledge for participants who knew the right answers regarding selected clinical nutritional items.

Questions	N(407)	Percent %
What percentage of the daily total energy requirement should come from fats? a) 15 - 20% b) 25 – 30%* c) > 35%	128	31.4
Which of the following nutrients is not an antioxidant? a) Vitamin E b) beta- carotene c) Iron*	105	25.8
Short-term diets are usually successful at achieving weight loss because they: a) Decrease appetite b) Cause the body to lose water* c) Burn large amount of stored fat	73	17.9
Excess of which nutrient may increase loss of body calcium: a) Protein* b) Saturated fat c) Potassium	34	8.4
Which nutrient is protective against hypertension? a) Potassium* b) Chloride c) Iron	163	40
What type of dietary fiber is helpful in lowering the blood cholesterol level? a) Wheat bran b) Soluble fiber* c) Insoluble fiber	146	35.9
A nutrient believed to help prevent thrombosis is: a) Omega 3 fatty acid* b) selenium c) Vitamin E	188	46.2
Which substance raises the blood HDL-cholesterol level? a) Alcohol* b) Animal protein c) Riboflavin	77	18.9
A type of food believed to have a preventive effect on various types of cancer is: a) Fruit and Vegetables* b) Milk c) Meat	331	81.3
A common nutrient deficiency in alcoholic is: a) Vitamin B1* b) Iron c) Protein	194	47.7
The nutrient strongly associated with the prevention of neural tube defects is: a) Folate* b) Zinc c) Beta- carotene	187	45.9
Which of the following foods have the lowest glycemic index? a) Ice cream* b) Rice c) Banana	43	10.6
The food groups suggested for hypertension patients are: a) Fruit and Vegetables* b) Meat and milk c) Bread and cereal	312	76.7
According to the American dietetic association the food that has more effect on blood sugar is: a) Carbohydrate* b) Fats c) Proteins	278	68.3
The food which decreases glucose absorption is: A) Rice b) Black bread* c) Milk	276	67.8
Malnutrition Definition is: a) Lack of one nutrient for long time. b) Increase intake of one nutrient for long time. c) Lack or increase intake of one nutrient for long time*.	248	60.9
What is the status of the body weight of an adult whose body mass index is rated between 25.0-29.9 kg/m ² ? a) Underweight b) Normal weight c) Overweight*	176	43.2
Which vitamin has the most toxic effect when consumed excessively for a long time? a) Vitamin A* b) Vitamin E c) Vitamin D	118	29%
Obesity is: a) Nutritional disease* b) Non nutritional disease	369	90.7
Hepatitis is: a) Nutritional disease b) Non nutritional disease*	350	86
Tuberculosis is: a) Nutritional disease b) Non nutritional disease*	339	83.3
Night blindness is: a) Nutritional disease* b) Non nutritional diseases	220	54.1
Iron deficiency anemia is: a) Nutritional disease* b) Non nutritional diseases	387	95.1

*: Right answer